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ANNOTATED BIBLIOGRAPHY of Walnut and Related Species

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FOREWORD

This bibliography attempts to cover all the technical literature dealing with *Juglans* ecology and silviculture and walnut timber products. It does not include popular articles or flyers, general textbooks, references on nut culture alone, or much material of a strictly taxonomic or paleobotanic nature.

The bibliography is arranged in alphabetical order by author. An index at the back provides a list of items by subject matter. More than four-fifths of the items are annotated. Most of the remainder were either not seen by the author or were in a foreign language, with no English summary or translation available.

We would appreciate being notified of any errors in the list and also would be glad to know of any publications that were omitted and should be included in a future supplement.

Our thanks are due the Commonwealth Forestry Institute and the Commonwealth Forestry Bureau, publisher of *Forestry Abstracts*, for their cooperation in the preparation of this bibliography. They supplied us with over 300 citations, which are the nucleus of this list.

Annotated Bibliography of Walnut and Related Species

David T. Funk 1/

1. Anonymous. 1930. "WALNUT" WOODS IN COMMERCE. Bull. Imp. Inst. 28:61-62.
Suggests more appropriate trade names for timber not belonging to the genus Juglans but hitherto sold under trade names that include the word "walnut".

2. Anonymous. 1941. Nussbaum. Holz 4(3): 127-128, illus.
A tabulation of physical, chemical, and technical properties and anatomical characteristics of Juglans regia, J. nigra, and J. cinerea.

3. Adman, A. G., and Diller, O. D. 1940. VOLUME TABLE FOR BLACK WALNUT (JUGLANS NIGRA), STARK COUNTY, OHIO. U.S. Forest Serv. Cent. States Forest Exp. Sta. Tech. Note 18, 1 p.
International 1/4-inch rule volume by d.b.h. and log length.

4. Akimochkin, N. G. 1961. /JUGLANS IN THE NORTHERN PART OF THE CENTRAL FOREST-STEPPE./ Bjul. Gl. Bot. Sada, Moskva 41:11-16. /In Russian/
Describes trials with 8 species (in most of which several provenances are under trial) and 2 varieties of Juglans, with data on size and frost-hardiness.

5. Akimochkin, N. G. 1961. /A NATURAL INTERSPECIFIC HYBRID IN THE GENUS JUGLANS./ Bjul. Gl. Bot. Sada, Moskva 44:11-14. /In Russian/
Describes the hybrid J. silvostepposa (J. regia x J. cinerea) which occurred in 1925, its performance since then, and attempts to propagate it.

1/ The author is a Geneticist on the staff of the North Central Forest Experiment Station. He is headquartered at the Station's field office in Carbondale, Ill., which is maintained by the Forest Service, U. S. Department of Agriculture, in cooperation with Southern Illinois University.

6. Akimochkin, N. G. 1961. /JUGLANS MANDSHURICA IN THE NORTHERN PART OF THE CENTRAL FOREST-STEPPE ZONE./ Les. Zh., Arhangel'sk 4(3):156-158, illus. /In Russian/
A short account of the performance (growth, flowering, fruiting, etc.) of the species in plantations in the Lipetsk region, established at various times since 1927.

7. Akimochkin, N. G. 1964. /HYBRIDS OF WALNUT (JUGLANS) AT THE FOREST-STEPPE EXPERIMENTAL STATION./ Bjul. Gl. Bot. Sada, Moskva 55:41-44. /In Russian/
Provides information on the main features of 11 hybrids derived from a crossing program involving J. sieboldiana, J. mandshurica, J. nigra, and J. cinerea. All the hybrids show heterosis for growth rate and seven display good winter hardiness.

8. Alefeld, Friedrich. 1861. Ueber Juglans L. Bonplandia 9:334-338.
/Not seen/

9. Allen, Peter H., and Barrett, Paul E. 1965. FIRST YEAR EVALUATION OF BLACK WALNUT SEEDING IN SOUTHEASTERN NEW HAMPSHIRE. Pages 49-50 in: Direct Seeding in the Northeast, Herschel G. Abbott, Ed., Mass. Agr. Exp. Sta., Amherst.
Sowing in late November just before soil freeze-up avoided seed pilferage by rodents. Nuts planted in the bottom of plowed furrows, when compared with those planted in the overturned sod, germinated better, grew taller, and suffered more leaf spot damage of unknown cause. Black walnuts planted 1 inch deep germinated better than those planted 2 or more inches deep.

10. American Walnut Manufacturers' Association. 1940. RULES FOR GRADING AMERICAN (BLACK) WALNUT LOGS. 4 pp.
Recognizes four log grades including cull.

11. Andronov, N. M. 1962. /ACCLIMATIZATION IN LENINGRAD OF SPECIES OF JUGLANDACEAE./

Nauch. Tr. Leningr. Lesotekh. Akad. 99:95-97. /In Russian/ /Translated in Ref. Zh. Biol., No. 6V4, 1963./

Of 11 species of Juglans grown at the Wood Technology Academy, at least 2, J. cinerea and J. mandshurica, bear fruit and are completely winter hardy.

12. Antipova, V. I. 1952. /CULTIVATION OF SEQUOIA IN THE YALTA FOREST DISTRICT./ Les. Khoz. 5(6):79. /In Russian/

Includes information on Juglans regia.

13. Ark, P. A. 1944. FURTHER EVIDENCE OF POLLEN DISSEMINATION OF WALNUT BLIGHT. Phytopathology 34:933. (Abstr.)

Recently pollinated nuts of Juglans regia were severely blighted by Phytomonas juglandis although no foliar blight or hold-over lesions were found on most trees.

14. Ark, P. A. 1944. POLLEN AS A SOURCE OF WALNUT BACTERIAL BLIGHT INFECTION. Phytopathology 34:330-334, illus.

Catkins are widely infected by Phytomonas juglandis with resultant contamination of pollen.

15. Arkwright, P. 1962. KNOW YOUR TIMBER, NO. 98: BLACK WALNUT (JUGLANS NIGRA). Woodworking Ind. 19(8):471, illus.

16. Ashcroft, J. M. 1934. EUROPEAN CANKER OF BLACK WALNUT AND OTHER TREES. W. Virginia Agr. Exp. Sta. Bull. 261, 52 pp., illus.

Nectria galligena Bres. infects J. nigra only through wounds extending to living tissue. The fungus can be killed by high temperature exposure; sufficiently high temperatures occur naturally in West Virginia. Planting trees on warm slopes at wide spacing to reduce mutual shading may provide natural control of the disease.

17. Ashraf, M. 1964. WALNUT WEEVIL IN SWAT AND KAGHAN VALLEYS. Commonw. Inst. Biol. Control Tech. Bull. 4, p. 65.

Alcides porrectirostris often ruins the entire nut harvest of Juglans regia in this region of West Pakistan.

18. Auten, J. T. 1936. SOIL PROFILE STUDIES IN RELATION TO SITE REQUIREMENTS OF BLACK LOCUST AND BLACK WALNUT. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 31, 11 pp.

Walnut growth is closely correlated with those properties of the subsoil--plasticity, compactness, and structure--which influence drainage and aeration. The species reacts unfavorably to either insufficient or excessive drainage. Walnut growth is not significantly correlated with degree of soil acidity or amount of chemical elements.

19. Auten, John T. 1945. SOME SOIL FACTORS ASSOCIATED WITH SITE QUALITY FOR PLANTED BLACK LOCUST AND BLACK WALNUT. J. Forest. 43(8):592-598, Illus.

In 120 Juglans nigra plantations in Ohio, Indiana, Illinois, Iowa, and Missouri, those that had grown best were on soils with fair to very fast internal drainage, moderate to crumbly plasticity, friable to loose compactness, and no mottling above the 14-inch depth.

20. Auyong, T. K., Westfall, B. A., and Russell, R. L. 1963. PHARMACOLOGICAL ASPECTS OF JUGLONE. Toxicon 1(4):235-239, illus.

Juglone is a depressant agent to unanesthetized fish, mice, rats, and rabbits.

21. Babcock, Ernest B. 1910. TERATOLOGY IN JUGLANS CALIFORNICA WATSON. Plant World 13:27-31, illus.

/Not seen/

22. Babcock, Ernest B. 1910. THE "WALNUT-OAK HYBRIDS." In: The Silva of California, by Willis Linn Jepson. Mem. Univ. Calif. 2:50-54, illus.

Describes trees grown from Juglans californica seed but having many simple leaves and variable fruit. Seedling progeny of the "hybrid" trees tend to resemble J. californica.

23. Babcock, Ernest B. 1913. A NEW VARIETY OF JUGLANS CALIFORNICA WATSON. Science (n.s.) 38:89-90.

/Not seen/

24. Babcock, Ernest B. 1913. STUDIES IN JUGLANS, I. STUDY OF A NEW FORM OF JUGLANS CALIFORNICA WATSON. Univ. Calif. Public. Agr. Sci. 2(1):1-47, illus.

A new variety, Juglans californica var. quercina Babcock, was discovered in 1910 and classified then. Mutation was believed to be the cause.

25. Babcock, Ernest B. 1914. STUDIES IN JUGLANS, II. FURTHER OBSERVATIONS ON A NEW VARIETY OF JUGLANS CALIFORNICA WATSON, AND ON CERTAIN SUPPOSED WALNUT-OAK HYBRIDS. Univ. Calif. Public. Agr. Sci. 2(2):47-70, illus.

Babcock rejects the possibilities of hybridization with oak, or teratological flowers, and accepts the theory of mutation of normal fruit in causing the variety.

26. Babcock, Ernest B. 1915. A NEW WALNUT. J. Hered. 6(1):40-45, illus.

J. californica var. quercina, a mutant

somewhat resembling Quercus agrifolia, is shown not to be a hybrid. Similar mutations have also been found in J. hindsii.

27. Babcock, Ernest B. 1915. WALNUT MUTANT INVESTIGATIONS. Nat. Acad. Sci. Proc. 1:535-537.
The quercina mutant of J. californica is described as being recessive to the species type, and not related to ploidy changes.

28. Babcock, Ernest B. 1916. STUDIES IN JUGLANS, III. I. FURTHER EVIDENCE THAT OAK-LIKE WALNUT ORIGINATE BY MUTATION. II. A PARALLEL MUTATION IN JUGLANS HINDSII (Jepson) SARGENT. Univ. Calif. Public. Agr. Sci. 2(3):71-80, illus.
The F_1 generation between var. californica and var. quercina shows genetic relationships. The existence of another mutation in Juglans hindsii is described.

29. Badoux, H. 1936. Le noyer dans la foret suisse. J. Forest. Suisse 87(7):149-152.
Recommends increased attention to Juglans regia as a timber tree.

30. Bailey, Lowell F. 1948. FIGURED WOOD: A STUDY OF METHODS OF PRODUCTION. J. Forest. 46:119-125, illus.
Describes attempts to propagate or create figured wood by mechanical treatment. Eight- and 10-year-old grafted walnut trees showed none of the curly grain characteristic of the parent.

31. Baker, F. S. 1921. BLACK WALNUT: ITS GROWTH AND MANAGEMENT. U.S. Dep. Agr. Bull. 933, 43 pp., illus.
The standard reference for many years, covering walnut range and supply, silvics, establishment, growth, management and yield, both of natural stands and plantations.

32. Balashov, P. K. 1952. /JUGLANS SPECIES ON THE CHESTNUT SOILS OF THE ARID STEPPES./ Les. Khoz. 5(4):27-29. /In Russian/

33. Barlow, Alfred L. 1955. THOMAS WALNUT SEED TREATMENT WITH RADIOACTIVE COBALT. N.Nut Growers Ass. Annu. Rep. 45(1954):56-59.
Juglans nigra seeds were irradiated at 8 levels from 0 to 50,000 r.e.p. Many seedlings from irradiated nuts were reddish-orange instead of normally green; second and third leaves of several of these seedlings were distorted. Initial germination percent increased directly with radiation dose while total seedling percent at the end of the first growing season was highest for the 30,000 r.e.p. treatment.

34. Barnes, M. M., Davis, C. S., Deal, A. S., and others. 1965. 1965 PEST AND DISEASE CONTROL PROGRAM FOR WALNUTS. Calif. Agr. Exp. Sta. Leafl. 80, rev., 16 pp.

35. Barrett, J. T. 1928. PHYTOPHTHORA IN RELATION TO CROWN ROT OF WALNUT. Phytopathology 18(11):948-949. (Abstr.)
Juglans californica is more susceptible than J. hindsii. J. regia is very resistant.

36. Barrett, R. E. 1932. AN ANNOTATED LIST OF THE INSECTS AND ARACHNIDS AFFECTING THE VARIOUS SPECIES OF WALNUTS OR MEMBERS OF THE GENUS JUGLANS LINN. Univ. Calif. Public. Ent. 5(15):275-309.
A systematic enumeration that attempts to cover all the species of insects and arachnids which feed on any member of the genus Juglans and to indicate type of injury caused.

37. Barth, Joseph. 1943. La production mondiale du bois de noyer. Int. Holzmarkt (26): 14-20, illus.

38. Barth, J. 1949. Les utilisations du bois de noyer. /USES OF WALNUT WOOD./ Rev. Bois Appl. 4(9/10):12-16, illus.
Describes quality requirements and manufacture of veneer, lumber, gun stocks, shoes, and turnery.

39. Barton, L. H. C. /n.d./ GREEN WALNUTS AS A SOURCE OF VITAMIN C. Food Manufacture 18(8):254-256.
Maximum vitamin C content of green English walnuts is reached about the end of July. Pickling of green nuts in syrup and sulphite solution preserves more of the vitamin C than pickling in brine or vinegar. Eating one pound per month of jam containing 10 percent green walnuts provides an adult with about one-quarter of his minimum daily vitamin C requirement.

40. Barton, Lela V. 1936. SEEDLING PRODUCTION IN CARYA OVATA (MILL.) K. KOCH, JUGLANS CINEREA L. AND JUGLANS NIGRA L. Boyce Thompson Inst. Contrib. 8:1-5, illus.
Pre-treatment for 2 to 4 months at low temperatures in a moist medium was necessary for seedling production in Juglans cinerea and Juglans nigra. When a sufficiently long period at low temperature (about 3° C.) was preceded by 1 to 4 months at high temperature (21° C.), germination was hastened but not increased. Good seedling stands were produced by fall planting when the seeds were protected by a mulch or a board cover. Exposure to freezing and thawing was harmful.

41. Baryshman, F. S. 1965. /GROWING OF PERSIAN WALNUT AND EUROPEAN CHESTNUT IN MIXED FOREST CULTURE./ Les. Khoz. 4:37-39. /In Russian/
Juglans regia made better height growth when planted at 1 x 2 meters, as contrasted to wider spacing. The trees bore fruit in the third year and by the fourth year fruited on 51 percent of their branches.

42. Batchelor, L. D. 1924. WALNUT CULTURE IN CALIFORNIA. Calif. Agr. Exp. Sta. Bull. 379, 91 pp., illus.
Reviews the walnut industry, environmental requirements, varieties, propagation, culture, and pests and their control (deals mainly with nut tree practices).

43. Batchelor, L. D., Braucher, O. L., and Serr, E. F. 1945. WALNUT PRODUCTION IN CALIFORNIA. Calif. Agr. Exp. Sta. Cir. 364, 34 pp., illus.
Deals mainly with J. regia culture to produce nuts, but covers propagation, nursery practice, irrigation, fertilization, intercropping, and pest control. (Supersedes Batchelor's Bulletin 379 of 1924.)

44. Batchelor, L.. D., and Reed, H. S. 1923. THE SEASONAL VARIATION OF THE SOIL MOISTURE IN WALNUT GROVES IN RELATION TO THE HYGROSCOPIC COEFFICIENT. Calif. Agr. Exp. Sta. Tech. Paper 10, 31 pp., illus.
The moisture relationships in semi-arid and irrigated walnut groves in California.

45. Becker, Gilbert. 1962. GREENWOOD BUDDING WITH POLYETHYLENE STRIPS. N. Nut Growers Ass. Annu. Rep. 52(1961):93-97, illus.
'Pre-season budding' (in late June in Michigan) of J. regia on J. nigra stock was successful, using a long bark slice with a portion of a leaf attached but no wood chip underneath. The bud patch when placed is entirely wrapped with a 3/4-inch-wide strip of polyethylene film.

46. Beckert, Wilhelm M. 1962. IMMEDIATE GRAFTING OF TRANSPLANTED BLACK WALNUT STOCK. N. Nut Growers Ass. Annu. Rep. 52(1961):49-51, illus.
Grafting in late May on large-stock plants transplanted earlier the same day was successful.

47. Benson, M., and Welsford, E. J. 1909. THE MORPHOLOGY OF THE OVULE AND FEMALE FLOWER OF JUGLANS REGIA AND OF A FEW ALLIED GENERA. Ann. Bot. (London) 23:625-633, illus.
The authors suggest a close relationship between Juglandaceae and Salicaceae.

48. Berger, L. 1895. Le noyer noir en Belgique. Soc. Forest. Belg. Bull. 2:419-426.
J. nigra silvics and performance of trees and stands in Belgium.

49. Berry, Edward W. 1905. THREE COTYLEDONS IN JUGLANS. Torreya 5:87.
/Not seen/

50. Berry, Frederick H. 1958. WALNUT ANTHRACNOSE--ITS CAUSE AND CURE. N. Nut Growers Ass. Annu. Rep. 48:(1957):16-23, illus.
This fungal disease, also called leaf spot, can become epidemic during summers with high rainfall and cool temperature. Fungicides, especially Dithane Z-78, can control the disease, which causes leaf necrosis and finally defoliation.

51. Berry, Frederick H. 1959. FURTHER EXPERIMENTS ON CONTROL OF WALNUT ANTHRACNOSE. N. Nut Growers Ass. Annu. Rep. 49(1958): 35-39, illus.
Gnomonia leptostyla, a fungus causing anthracnosis of eastern black walnut, which occurs more often in cool and rainy weather in late spring or early summer, was well controlled by zineb and almost as well by maneb.

52. Berry, Frederick H. 1960. ETIOLOGY AND CONTROL OF WALNUT ANTHRACNOSE. Maryland Agr. Exp. Sta. Bull. A-113, 22 pp., illus.
The disease, also called leaf blotch, is caused by the fungus Gnomonia leptostyla. The fungus overwinters primarily in fallen walnut leaves and can be controlled by several fungicides, especially zineb (Dithane Z-78). Eastern black walnut is more heavily attacked than Persian walnut or butternut.

53. Berry, Frederick H., and Gravatt, G. Flippo. 1955. WALNUT BUNCH DISEASE. Calif. Dep. Agr. Bull. 44:63-67, illus.
Describes this virus disease, which often seriously deforms or kills Juglans in the eastern United States but has not yet been found in California.

54. Bertsch, Karl. 1951. Der Nussbaum (Juglans regia) als einheimischer Waldbaum. /THE PERSIAN WALNUT IN ITS NATIVE HABITAT./ Württemberg Landesstelle für Naturschutz und Landschaftspflege. Veröffentl. 20:65-68.
/Not seen/

55. Biraghi, A. 1938. Formazione di tessuti aeriferi anormali in rami di castagno e nocciolo danneggiati da gas tossici. /FORMATION OF ABNORMAL AERIFEROUS TISSUES IN TWIGS OF CASTANEA SATIVA AND JUGLANS REGIA DAMAGED BY TOXIC GASES./ Boll. delle R. Sta. di

Pathol. Veg. di Roma 18, 18 pp., illus.

56. Biswell, Harold H. 1935. EFFECT OF ENVIRONMENT UPON THE ROOT HABITS OF CERTAIN DECIDUOUS FOREST TREES. Bot.Gaz. 96:676-708, illus.
Total lateral spread of roots of 1-year-old black walnut seedlings was 4 feet in clay, 3.5 feet in loess, and 3 feet in alluvial soil. Seven- to 12-year-old black walnut saplings developed strong taproots 4 to 6 feet long with many oblique branches spreading 3 to 6 feet and often reaching similar depths. Numerous strong horizontal laterals extended outward to distances 2 or 3 times the diameter of the crown.

57. Blaja, D., and Stoian, Elisabeta. 1964. Contributii la metodica de selectie a nucului. /METHODICS OF WALNUT BREEDING./ Gradina, Via Livada 13(9):24-31, illus.
Procedures for breeding Juglans regia of increased productivity and increased resistance to disease and climatic damage.

58. Bloch, H. 1950. Arborización y rentabilitad. /TREE-PLANTING AND ITS PROFITS./ Agr. Trop. Bogota 6(11):39-41.
Presents an estimate of costs and returns from a walnut plantation in Colombia.

59. Bode, Hans Robert. 1958. Beiträge zur Kenntnis allelopathischer Erscheinungen bei einigen Juglandaceen. /ALLELOPATHY IN SOME JUGLANDACEAE./ Planta 51(4):440-480, illus.
Production of inhibiting material by J. nigra and J. regia is primarily through leaf drippings and fallen leaves, but fallen catkins can also inhibit growth of tomato and tobacco plants for about 12 days followed by a period of growth promotion. Juglone content of J. nigra and J. regia leaf drippings is highest immediately after leafing out in the spring, lowest about 8 days before leaf yellowing in the fall. Tomato root development is promoted by growing plants in a nutrient solution previously used for growing J. nigra, perhaps because of inhibition of harmful bacteria.

60. Bode, Hans Robert. 1959. Über den Zusammenhang zwischen Blattentfaltung und Neubilding der Sangwurzeln bei Juglans. /THE RELATIONSHIP BETWEEN LEAF DEVELOPMENT AND THE FORMATION OF NEW ABSORBING ROOTS IN JUGLANS./ Ber. Deut. Bot. Ges. 72(2):93-98, illus.

61. Bode, Hans Robert. 1961. Über die Abhängigkeit des Knospenaustriebs bei Juglans nigra von der vorangegangenen Winter-temperatur. /THE DEPENDENCE OF FLUSHING IN J. NIGRA ON PRECEDING WINTER TEMPERATURES./ Ber.Deut. Bot. Ges. 74(7):288-291, illus.
Bud development on walnut saplings held at 14° to 20° C. until the end of December was greatly delayed. Bud development was completely inhibited by holding the plants at 14° to 20° C. throughout the winter.

62. Boer, S. de. 1954. Proeven over het enten van noten 1949-1953. /EXPERIMENTS ON GRAFTING WALNUTS 1949-1953./ Jaarb. Proefsta. Boomkwek. Boskoop 1953:35-40.

63. Boer, S. de., and Vogel, P. de. 1951. Het enten van walnoten. /GRAFTING WALNUTS./ Jaarb. Ver. "De Prooftuin" te Boskoop 1950: 67-69.

64. Boerner, Franz. 1932. Dendrologische Beobachtungen. Mitt. Deut. Dendrol. Ges. 44:365-378, illus.
Pages 365-370 describe Juglans stenocarpa Maxim., a Manchurian species, and contrast it to J. mandshurica.

65. Böhmerle, Emil. 1906. Die Anzucht des Nussbaumes im Walde. /PLANTING WALNUTS IN THE FOREST./ Zentralbl. Gesamte Forstwesen 32:203-211.
Recommendations for site selection, seed stratification, direct seeding, planting stock, pruning, transplanting. Suggests that Juglans nigra may be more valuable than J. regia, and recommends mixed planting with beech, oak, and ash.

66. Borzakivs'ka, I. V. 1964. /EFFECT OF VARIABLE TEMPERATURES AND SOME CHEMICAL SUBSTANCES ON THE WINTER-HARDINESS OF PERSIAN WALNUT AND SWEET CHESTNUT SEEDLINGS./ Ukr. Bot. Zh. 21(4):16-24, illus. /In Ukrainian, Russian and English summary/
Seed stratified in a fluctuating temperature regime produced seedlings that were more vigorous and more winter-hardy than control seedlings.

67. Bosch, Robert van den., Schlinger, Evert I., and Hagen, Kenneth S. 1962. INITIAL FIELD OBSERVATIONS IN CALIFORNIA ON TRIOXYS PALLIDUS (HALLIDAY), A RECENTLY INTRODUCED PARASITE OF THE WALNUT APHID. J. Econ. Entomol. 55:857-862, illus.
This parasite wasp is well synchronized with its host and seems very effective.

68. Boyce, A. M. 1934. BIONOMICS OF THE WALNUT HUSK FLY. Hilgardia 8(11):363-579, illus.
A monograph covering history, taxonomy, distribution, host studies, economic importance, life stages, natural enemies, and chemical control.

69. Brandstetter, J. von. 1913. Zur Kultur von Juglans nigra. /GROWING BLACK WALNUT./ Oesterr. Forst-und Jagd. Zeitung 31(2):10-11.
Recommends direct seeding in spring or else transplanting, establishing mixed plantations, cultivating during the first year, pruning up to 15 to 20 feet height, release and protection as needed.

70. Braucher, O. L., and Southwick, R. W. 1941. CORRECTION OF MANGANESE-DEFICIENCY SYMPTOMS OF WALNUT TREES. Amer. Soc. Hort. Sci. Proc. 39:133-136, illus.
Moderate manganese deficiency in Persian walnut trees is characterized by leaf mottling somewhat similar to zinc deficiency symptoms. Severe manganese deficiency symptoms resemble those of excess boron burn. Manganese sulfate treatments were effective in reducing symptoms.

71. Brierly, W. G. 1953. HORMONES HELP BLACK WALNUT ROOT GRAFTS. Minn. Hort. 81: 44.
Dusting with Hormodin No. 2 powder on the tips of the scion and over the union increased root grafting success from a maximum of 15 percent to 71 to 90 percent. The grafts were set in sawdust with only the terminal bud exposed and kept at a temperature of 65° F.

72. Bringezu, A. 1962. Der Einfluss von Klimafaktoren auf die Schalenausbildung bei Walnussen. /EFFECT OF CLIMATIC FACTORS ON SHELL FORMATION IN WALNUTS./ Intensivobstbau 2:92-94, illus.
Defects in shell formation are more frequent in years when May through September sunshine totals fewer than 1000 hours.

73. Brinkman, K. A. 1957. SILVICAL CHARACTERISTICS OF BLACK WALNUT. U.S. Forest Serv. Cent. States Forest Exp. Sta. Misc. Release 22, 15 pp., illus.
Discusses climate, soils and topography, associated trees and shrubs, reproduction and early growth, sapling stage to maturity, and races and hybrids.

74. Broadfoot, W. M., and Pierre, W. H. 1939. FOREST SOIL STUDIES: I. RELATION OF RATE OF DECOMPOSITION OF TREE LEAVES TO THEIR ACID-BASE BALANCE AND OTHER CHEMICAL PROPERTIES. Soil Sci. 48:329-348, illus.
Among 19 species studied, black walnut leaves are characterized by a high rate of decomposition, high nitrogen content (second only to black locust), high ash content, and the highest calcium and excess base content.

75. Brooks, Fred E. 1921. WALNUT HUSK-MAGGOT. U.S. Dep. Agr. Bull. 992, 8 pp., illus.
Life stages and habits of this pest, which is found throughout the natural range of Juglans nigra and J. cinerea. J. nigra and J. regia are preferred hosts, probably because of their relatively thick husks. The adult stage can be controlled with lead arsenate spray.

76. Brooks, Maurice G. 1951. EFFECTS OF BLACK WALNUT TREES AND THEIR PRODUCTS ON OTHER VEGETATION. West Virginia Agr. Exp. Sta. Bull. 347, 31 pp., illus.
J. nigra is apparently antagonistic to apple, potato, tomato, alfalfa, blackberry, and other plants growing in actual contact with walnut roots. Soil pH within walnut root spread tended to be higher than outside, and the more acid the surrounding soil, the greater the pH increase beneath the walnut.

77. Brown, Babette I. 1943. INJURIOUS INFLUENCE ON BARK OF BLACK WALNUT ROOTS ON SEEDLINGS OF TOMATO AND ALFALFA. N. Nut Growers Ass. Annu. Rep. 33(1942):97-102, illus.
Tomato and especially alfalfa seedlings that germinated on pieces of walnut root bark were much stunted, shriveled, and discolored as compared with seedlings germinated on apple or sumac root bark or on blotting paper. Injury to tomato plants growing in a solution containing walnut root bark can be reduced by adding increased nitrogen.

78. Brush, Warren D. 1921. UTILIZATION OF BLACK WALNUT. U.S. Dep. Agr. Bull. 909, 88 pp., illus.
Insect and disease pests, and the properties and various uses of walnut wood.

79. Brush, Warren D. 1925. SELLING BLACK WALNUT TIMBER. U.S. Dep. Agr. Farmers' Bull. 1459, 20 pp., illus.
Covers log grading, volume estimation, sales procedure, efficient timber cutting and log bucking, and shipping costs.

80. Brush, Warren D. 1948. SELLING BLACK WALNUT TIMBER. U.S. Dep. Agr. Farmers' Bull. 1459 rev., 19 pp., illus.

81. Bryner, W. 1951. Walnuss veredlung. /WALNUT GRAFTING./ Schweiz. Obst-und Weinbau 60:411-418, illus.
Potting prior to grafting is better than bedding grafted plants close together in indoor grafting of J. regia as practiced in Switzerland. Two-year-old J. regia and J. nigra seedlings are used as rootstocks.

82. Burgess, Elden, H. 1959. THE MANREGIAN WALNUT. Mich. Nut Growers Ass. Newsletter 7-10.
A J. regia selection from northern China is characterized by a short growing season and good resistance to both late and early frost damage as well as winter kill.

83. Burgos, Julio Cesar. 1948. Notas ecológicas sobre nogal criollo (Juglans australis Gris.) cultivado en La Plata. Darwiniana, Buenos Aires 8(2/3):406-408.
Phenological notes and a description of natural reproduction in a J. australis plantation at La Plata. Seed source was apparently northern Argentina; the trees are 12 meters tall and 40 centimeters in diameter.

84. Burton, J. D. 1964. TWENTY YEARS OF GROWTH IN THE NORRIS WATERSHED PLANTATIONS. J. Forest. 62:392-397.
Establishment and initial survival of seeded and planted oaks and seeded black walnut were very good, but nearly all trees were destroyed by rodents during the first 5 years. Growth of some survivors is fair on average sites and remarkable in sinkholes, suggesting that the biggest problem in the artificial regeneration of these species in this locality is protection from mammalian depredation.

85. Bustinza, F. 1959. Los precursores en la investigación de los antibióticos. Segunda nota. Sobre la actividad antibiótica de las hojas de Juglans regia y Juglans nigra. /PIONEERS IN RESEARCH INTO ANTIBIOTICS. SECOND NOTE. ANTIBIOTIC PROPERTIES OF LEAVES OF J. REGIA AND J. NIGRA./ Ann. Inst. Bot. A. J. Cavanilles 17(1):15-19, illus.
Summarizes experiments made with walnut leaf extracts by Davaine in 1878, and reports briefly confirmatory experiments demonstrating the inhibiting effect of leaf extracts of J. regia and J. nigra on Bacillus anthracis.

86. Campbell, William George. 1935. THE PREPARATION AND PROPERTIES OF OAK AND WALNUT STARCH. Biochem. J. 29(5):1068-1080, illus.
Starch in Juglans regia is found only in the outer layers of the sapwood. The wood starch present is an acid polysaccharide, 90 percent of which is composed of anhydroglucose residues; the remainder is probably glucose-glucuronic anhydride. Wood starch is suitable for feeding to larvae of Lyctus powder-post beetles.

87. Canadas Cruz, Luis E. 1963. Comportamiento de pseudoestacas de cinco especies maderables variando dosel y época de plantación. /BEHAVIOR OF STUMP PLANTS OF FIVE TREE SPECIES, PLANTED AT DIFFERENT TIMES AND UNDER DIFFERENT COVER./ Turrialba 13(4): 233-235. /English summary, p. 233./
Initial survival of Juglans boliviana planted in Costa Rica was higher under forest cover than on a grassy site.

88. Candolle, Casimir de. 1862. Memoire sur la famille des Juglandées. Ann. Sci. Nat. (Bot.) 18:5-48, illus.
The original standard reference on taxonomy of the Juglandaceae.

89. Capus, J., and Feytaud, J. 1918. Note sur une maladie du Noyer. Bull. Soc. Pathol. France 5:61-63.
/Not seen/

90. Carnevale, J. A. 1949. El cultivo del nogal en Argentina. /THE CULTIVATION OF WALNUT IN ARGENTINA./ Montes, Madrid 5(27): 205-210.
Notes on climate and soil requirements, varieties, propagation, planting methods, parasites, pruning and yield, and collection and drying of nuts.

91. Carter, J. C., and Hoffman, P. F. 1953. RESULTS OF FUNGICIDE TESTS FOR CONTROL OF LEAF DISEASES OF BLACK WALNUT, CATALPA, AND AMERICAN ELM IN 1951 AND 1952. Plant Disease Reporter 37 (2):114-115.
Puratized agricultural spray was the most effective of six fungicides tested in controlling Marssoniana juglandis leaf spot on Juglans nigra.

92. Cerny, L. 1964. /THE GRAFTING OF WALNUT TREES IN NURSERIES./ Ovocnarstri a Zelinarstvi 12(9):230-233. /In Czech./
/Not seen/

93. Chandler, William Henry. 1957. DECIDUOUS ORCHARDS. Ed. 3, 492 pp., illus. Lea and Febiger, Philadelphia.
Eighteen pages on walnuts, mostly J. regia. Paradox hybrid is perhaps best grafting rootstock. Cover crop suggested as possible means of overcoming inadequate soil depth. J. regia requires little phosphorus and very little potassium.

94. Chapman, A. G. 1961. PLANTING BLACK WALNUT FOR TIMBER. U.S. Dep. Agr. Leaflet 487, 6 pp., illus.
A brief account of choice and preparation of site, and planting and initial tending requirements.

95. Chase, S. B. 1947. BUDDING AND GRAFTING EASTERN BLACK WALNUT. Amer. Soc. Hort.

Sci. Proc. 49:175-180, illus.
In early May, patch budding was the best of four budding methods tried, but resulted in only half as much survival as grafting. Cold weather and bleeding of stocks were the most common causes of bud failure.

96. Chase, S. B. 1947. EASTERN BLACK WALNUT GERMINATION AND SEEDBED STUDIES. J. Forest. 45:661-668, illus.
Seed planted in the nursery in the fall germinates faster and more completely than spring-sown seed, but prompt outdoor stratification (with attendant temperature fluctuation) produced seed better for spring sowing than did any indoor chilling treatment or delayed stratification outdoors. Planting depth affected germination date and thus seedling size, with the largest seedlings arising from seed planted 1 inch deep, the smallest from 4-inch-deep seed. To produce seedlings in 1 year large enough for use as budding rootstocks, seedbed spacing at least as wide as 6 x 6 inches is desirable.

97. Chase, S. B. 1950. THE DWARFING EFFECT OF JUGLANS RUPESTRIS. N. Nut Growers Ass. Annu. Rep. 40(1949):158-160.
Thomas black walnuts grown in Tennessee on J. regia rootstocks are larger than those grafted on J. rupestris.

98. Cheng, Kwei-Shung. 1945. STUDIES ON THE GERMINATION OF FOREST SEEDS AND THE DEVELOPMENT OF THEIR SEEDLINGS RELATIVE TO THE SIZE, WEIGHT AND SPECIFIC GRAVITY OF THE SEEDS. J. Agr. Ass. China 180(5/6):65-75. /In Chinese, English summery/
Includes Juglans regia. /Not seen./

99. Cheyney, E. G. 1931. ESTABLISHMENT, GROWTH, AND INFLUENCE OF SHELTERBELTS IN THE PRAIRIE REGION OF MINNESOTA. Minn. Agr. Exp. Sta. Bull. 285, 36 pp., illus.
Gives data on average diameter, height, number of trees, and distribution by diameter classes of black walnut and other species in 30-year-old plantations.

100. Chiriţa, Const. D. 1938. Contribuţii la cunoaşterea exigenţelor nuculei American (Juglans nigra) faţă de sol. /SOIL REQUIREMENTS OF J. NIGRA./ An. Inst. Cercet. Exp. Forest. 4:28-56, illus.
Best growth in Rumania is on sandy-loam soil 3 to 3.5 meters above water table. High soil organic content also improves growth. The best plantation studied averaged 18.4 meters tall at 23 years of age. Site index curves and form-class diagrams are included.

101. Chu-Tse. 1961. /NEW METHODS OF GRAFTING WALNUTS IN VEGETATIVE HYBRIDIZATION./ Vestn. Sel'-skokhozyaistv. Nauk (9):123-130. /In Russian/
A number of hybrids were produced by grafting, including the following combinations: Juglans cinerea on Carya olivaeformis, and J. regia simultaneously on rootstocks of both J. mandshurica x sieboldiana and J. mandshurica x regia.

102. Clark, F. B. 1953. TIME REQUIRED TO PRUNE BLACK WALNUT TREES. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 78, 2 pp., illus.
Pruning time increases directly with cleared height up to about 18 feet. Time required to remove the branches from a section of bole of a given length on small black walnut trees is the same whether the section is high or low on the bole.

103. Clark, F. B. 1955. BLACK WALNUT RESPONDS TO PRUNING. J. Forest. 53(5):362-365, illus.
Up to 75 percent of the crown was removed from 3- to 5-inch, 14-year-old black walnut trees without seriously reducing their growth. Sprouting intensity was directly related to degree of pruning and tree size.

104. Clark, F. B. 1958. SILVICAL CHARACTERISTICS OF BUTTERNUT (Juglans cinerea). U.S. Forest Serv. Cent. States Forest Exp. Sta. Misc. Release 28, 9 pp., illus.
Discusses climate, soils and topography, associated trees and shrubs, reproduction and early growth, sapling stage to maturity, enemies and hazards, and races and hybrids.

105. Clark, F. B., and Seidel, K. W. 1961. CLIMATIC INJURY FOUND ON PLANTED BLACK WALNUT IN KANSAS. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 147, 2 pp., illus.
A dieback resembling sunscald has been found on planted black walnut growing on strip-mined land. This climatic injury has greatly reduced the quality of many trees in the affected area.

106. Clark, F. B., and Seidel, K. W. 1961. GROWTH AND QUALITY OF PRUNED BLACK WALNUT (Juglans nigra). U.S. Forest Serv. Cent. States Forest Exp. Sta. Tech. Paper 180, 11 pp., illus.
Ten-year pruning studies in Kansas show that as much as 3/4 of the live crown can be removed without seriously retarding growth. The possibility of epicormic branching, however, sets a practical limit to the amount of pruning that can be done.

107. Cociu, V. 1964. Selecţia celor mai valoroase tipuri de nuc. /BREEDING THE MOST VALU-

ABLE WALNUT TYPES./ Gradina, Via Livada 13(9):20-23.
Notes are provided on the principal objectives of breeding work.

108. Cook, Mel. T. 1921. WILTING CAUSED BY WALNUT TREES. Phytopathology 11:346.
Potato and tomato plants are affected within the root zone.

109. Cookson, Isabel C. 1929. AN ACCOUNT OF A CROWN ROT OF ENGLISH WALNUT TREES IN VICTORIA. Roy. Soc. Victoria Proc. (N.S.) 42: 5-25, illus. /Appendix: the relation of the fungus to trees in Victoria, by S. M. Wadham, pp. 25-26./
A fungus, probably Phytophthora parasitica Dastur, has been isolated from roots of J. regia. The disease can usually kill 12- to 18-month-old seedlings within a month after inoculation.

110. Commonwealth Mycological Institute. 1964. Xanthomonas juglandis. Distribution Maps of Plant Diseases 1964:133-134, illus. /Map 133, ed. 2./
Gives the worldwide distribution of walnut blight.

111. Corsan, G. H. 1939. REPORT FROM CANADA. N. Nut Growers Ass. Annu. Rep. 29(1938): 102-103.
Describes a vigorous hybrid of Juglans cinerea and J. sieboldiana.

112. Coulter, Stanley. 1899. SOME UNRECOGNIZED FORMS OF NATIVE TREES. Indiana Acad. Sci. Proc.:112-116.
Describes three forms of J. nigra, based largely on fruit and leaf size; one may be a hybrid.

113. Cox, L. G. 1943. PRELIMINARY STUDIES ON CATKIN FORCING AND POLLEN STORAGE OF CORYLUS AND JUGLANS. N. Nut Growers Ass. Annu. Rep. 34:58-60.
Juglans sieboldiana pollen was stored successfully for 8 months at 0° C. and 40 and 60 percent humidity.

114. Crane, H. L., Reed, C. A., and Wood, M. N. 1937. NUT BREEDING. U.S. Dep. Agr. Yearbook 1937:827-889, illus.
Includes a section on "Fundamentals in nut breeding," (pp. 871-881) that covers artificial and natural pollination, fertilization of ovule and development of embryo, incompatibility and inheritance of characters.

115. Crath, P. C. 1940. CROSS-POLLINATION IS THE CAUSE OF HARDINESS, EARLINESS AND SWEETNESS IN CARPATHIAN PERSIAN WALNUTS. N. Nut Growers Ass. Annu. Rep. 30(1939):85-89.
Variation within Juglans regia.

116. Creighton, J. W., Stump, W. G., and Hutchins, W. F. 1952. CORRELATION OF WALNUT FURNITURE CUTTING REQUIREMENTS WITH GRADE YIELD. Mich. Agr. Exp. Sta. Quart. Bull. 35(2):230-274.
Under the conditions studied, F.A.S. and No. 2 Common grades should be purchased in about 30/70 ratio to best meet a requirement for 8/4 walnut material.

117. Cristinzio, M., and Verneau, R. 1954. L'eziologia del 'mal nero' del noce in Campania. /THE ETIOLOGY OF A DISEASE OF JUGLANS REGIA (CAUSED BY PHYTOPHTHORA CAMBIVORA) IN CAMPANIA./ Richerchi osservazioni e divulgazioni fitopatologiche, per la Campanie ed il Mezzogiorno, Inst. di Patol. Veg., Naples 12:3-34, illus.
The disease in walnuts, serious and widespread in the south of Italy, differs in many respects from the "Ink disease" of chestnuts caused by the same pathogen.

118. Crocker, William; Thornton, Norwood C.; and Schroeder, Eltora M. 1946. INTERNAL PRESSURE NECESSARY TO BREAK SHELLS OF NUTS AND THE ROLE OF THE SHELLS IN DELAYED GERMINATION. Boyce Thompson Inst. Contrib. 14(3):173-201, illus.
Breaking strength of intact J. nigra shells at the time of germination ranged from 28 to 33 atmospheres, J. cinerea shells about 28 atmospheres. Removal of portion of the shell over the radicle region allowed prompt germination of walnut and butternut, even at temperatures above 17° C., too high for germination of intact nuts in this test. No embryo dormancy is indicated.

119. Cronbach, Werner. 1934. Anbau von Juglans regia. /GROWING ENGLISH WALNUT./ Mitt. Deut. Dendrol. Ges. 46:98-105.
Growing English walnut for timber can be much more profitable if immature trees are cultured to produce nut crops and thus earlier income.

120. Cronbach, Werner. 1936. Wissenswertes vom Anbau der Walnuss. /TIPS ON WALNUT CULTURE./ Deut. Forstwirt 18:488-490, illus.
The author warns against assuming that every late-flushing walnut tree is inherently resistant to late frost. Some trees leaf out late because they grow in sheltered locations; they are not suitable for seed collection. Walnut seed can be kept in dry storage for 20 months, even at temperatures as warm as 62° F. Carefully dried seed will still germinate the second year, even though the

kernel already tastes rancid. Nonetheless, stratifying in sand pits and sowing the first spring are recommended for regular practice. Since both the radicle and the hypocotyl emerge from the same end of the nut, seeds should be planted on their side, not pointed up or down.

121. Curzi, M. 1933. La maladie de l'encre sur le noyer (Juglans regia). Bull. Sez. Ital. Soc. Int. Microbiol. 5(12):341-344.
Ink disease.

122. Curzi, M. 1933. La "Phytophthora (Blephaspora) cambivora" Petri sul noce. Roy. Accad. Lincei, Rend. 18:587-592.

123. Daglish, C. 1950. THE DETERMINATION AND OCCURRENCE OF A HYDROJUGLONE GLUCOSIDE IN THE WALNUT. Biochem. J. (London) 47(4):458-462, illus.
The compound might be promotive in rapidly dividing tissue. Another possibility is that the glucoside acts as a fungicide or insecticide in reproductive tissue.

124. Daglish, C. 1950. THE IDENTIFICATION OF THE 'APPARENT VITAMIN C' OF THE WALNUT (JUGLANS REGIA) WITH HYDROJUGLONE GLUCOSIDE. Biochem. J. (London) 47(4):462-466, illus.
The previously reported 'apparent vitamin C' of walnuts appears to be hydrojuglone glucoside. A second dye reductant, probably a flavonone, is found in walnut leaves.

125. Daglish, C. 1950. THE ISOLATION AND IDENTIFICATION OF A HYDROJUGLONE GLUCOSIDE OCCURRING IN THE WALNUT. Biochem. J. (London) 47(4):452-457, illus.
An amorphous compound $C_{16}H_{18}O_8$ was isolated from walnut tissue, apparently in such form as exists in the natural plant. The compound is probably the 5-glucoside of 1:4:5-trihydroxynaphthalene.

126. Daglish, C. 1951. THE OCCURRENCE OF ASCORBIC ACID IN THE WALNUT (JUGLANS REGIA). Biochem. J. (London) 49(5):639-642, illus.
Ascorbic acid and dehydroascorbid acid concentration in walnut leaves and fruit vary widely over the growing season.

127. Daglish, C. 1951. THE SPECTROPHOTOMETRIC DETERMINATION OF ASCORBIC ACID IN TISSUE EXTRACTS, PARTICULARLY THOSE OF THE WALNUT (JUGLANS REGIA). Biochem. J. (London 49(5):635-639, illus.
Absorption curves as affected by pH are shown.

128. Daglish, C., and Wokes, F. 1948. HYDROJUGLONE AND APPARENT VITAMIN C IN WALNUTS. Nature (London) 162(4109):179-180, illus.
The non-specific dye reductant previously reported as associated with vitamin C in walnut tissue and termed "apparent vitamin C" is found to be a derivative of hydrojuglone.

129. Dallimore, W. 1923. ARBORETUM NOTES: THE HARDY WALNUTS. Quart. J. Forest. 17:239-245.
Performance of 10 Juglans species in Great Britain.

130. Damanski, A. F., and Pazarincevic, F. 1959. CHEMICAL COMPOSITION OF THE CATKINS OF WALNUT TREES. Bull. Soc. Chim. Biol., Paris 41:611-619. /In French/
Maximum content of reductones and strong reducing substances is found during the initial stage of bud formation. Highest production of pentosans and crude cellulose takes place during bud formation and at the withering stage of the catkins.

131. Danilova, A. A. 1959. /THE INFLUENCE OF SEED PRETREATMENT ON FIELD GERMINATION./ Les. Zh., Arhangel'sk 2(1):54-56. /In Russian/
Includes Juglans mandshurica.

132. Davis, Ben II. 1963. THE MODIFIED PATCH BUD. Int. Plant Propagators' Soc. Proc. 12 (1962):136-139.
Describes a budding method used successfully with J. nigra and J. regia.

133. Davis, Ben II. 1965. NURSERY PROPAGATION OF CARPATHIAN WALNUTS. Int. Plant Propagators' Soc. Combined Proc. 14(1964): 149-152.
Recommends spacing seedling rootstocks at 1 x 4 1/2 feet to produce plants large enough for budding in mid-August of the first growing season. Regular fertilization and irrigation is required to keep the stock trees growing vigorously until after the bud has completely united with the stock.

134. Davis, Everett F. 1928. THE TOXIC PRINCIPLE OF JUGLANS NIGRA AS IDENTIFIED WITH SYNTHETIC JUGLONE, AND ITS TOXIC EFFECTS ON TOMATO AND ALFALFA PLANTS. Amer. J. Bot. 15:620.
Juglone, or 5-hydroxy-alpha-naphthaquinone, found throughout the walnut plant, is the toxic substance previously reported.

135. Davis, T. C. 1962. FOUR NEW HOSTS OF CRISTULARIELLA PYRAMIDALIS. Phytopathology 52(11):1217.

Juglans cinerea is one of them.

136. Dayton, William A. 1948. JUGLANS NIGRA OBLONGA IN MISSOURI. Rhodora 50:147. /Not seen/

137. Deitschman, G. H. 1956. GROWTH OF UNDERPLANTED HARDWOODS IN BLACK LOCUST AND SHORTLEAF PINE PLANTATIONS. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 94, 2 pp.
Black walnut seedlings planted under 8-year-old black locust averaged 16 feet tall after 8 years, but those planted under a 9-year-old shortleaf pine stand grew only 4 feet tall in 8 years.

138. Delpino, F. 1875. Dimorfismo nel noce (Juglans regia) e pleiontismo nelle piante. /Dichogamy in English walnut./ Nuovo G. Bot. Ital. 7:148-153. /Not seen/

139. Deters, M. E., and Schmitz, Henry. 1936. DROUTH DAMAGE TO PRAIRIE SHELTERBELTS IN MINNESOTA. Minn. Agr. Exp. Sta. Bull. 329, 28 pp., illus.
Charts show percentage composition of shelterbelts by species (including black walnut), the survival and condition by species, the order of preference of the species for shelterbelt use. The suitability of black walnut is discussed under recommendations.

140. Devoto, F. E. 1939. Las hibridaciones entre especies forestales y sus frecuentes hibridaciones naturales en nuestro pais. Psysis, Buenos Aires: 18:369-374, illus.
A natural hybrid of Juglans regia and a Peruvian walnut is apparently resistant to Pseudomonas juglandis.

141. Diller, O. D., and Kellogg, L. F. 1946. LOCAL VOLUME TABLE FOR BLACK WALNUT (JUGLANS NIGRA) IN STARK COUNTY, OHIO. U.S. Forest Serv. Cent. States Forest Exp. Sta. Tech. Note 6, 2 pp.
International 1/4-inch rule volume by d.b.h. and average height.

142. Djuval-Stroev, M. R. 1963. /(JUGLANS NIGRA IN KRASNODAR./ Bjul. Gl. Bot. Sada, Moskva 50:52-57. /In Russian/
Notes on its performance in this north Caucasus region, based on measurements and observations of 1,300 trees of various ages at 16 different sites (parks, avenues, plantations, etc.). J. nigra here is well acclimatized.

143. Dode, L. A. 1906, 1909, 1910. Contribution a l'étude du genre Juglans. Bull. Soc. Dendrol. France 1906:67-98; 1909:22-50; 1910:165-215, illus.
The only attempt at a complete taxonomic monograph on Juglans.

144. Dodge, B. O. 1947. THE BROOMING DISEASE OF WALNUT. New York Bot. Gard. J. 48(569): 112-114, illus.
The occurrence of brooming on J. sieboldiana in the apparent absence of fungi, bacteria, or mites seems to verify previous reports of a virus causing the disease.

145. Dorofeev, P. P. 1949. /THE BIOLOGY OF FLOWERING AND FRUITING OF PERSIAN WALNUT IN MOLDAVIA./ Priroda, Moscow 38(4):48-50. /In Russian/

146. Dufrenoy, J. 1923. Note sur les noyers. Rev. Eaux et Forêts 61:22-23.
A brief description of eight Juglans species and two hybrids.

147. Ealy, Robert P. 1959. ROOTSTOCKS AND INTERSTOCKS FOR PECANS AND WALNUTS. Ass. S. Agr. Workers Proc. 56:154-156.
Neither J. rupestris nor J. nigra rootstocks had any dwarfing effect on grafted Ogden walnut scions.

148. Ellis, Z. H. 1925. THE FARTHEREST NORTH IN U. S. NUT CULTURE. N. Nut Growers Ass. Annu. Rep. 16:28-30.
Juglans nigra seedlings of west-central Illinois provenance have thrived for almost 60 years in west-central Vermont.

149. Elwes, H. J. 1908. THE BLACK WALNUT. Quart. J. Forest. 2:167-175.
Includes a tabulation of walnut growth in English and a summarization by D. C. Trier of Rebmann's 1907 article on J. regia and J. nigra.

150. Emerson, R. A. 1906. THE RELATION OF EARLY MATURITY TO HARDINESS IN TREES. Nebr. Agr. Exp. Sta. Annu. Rep. 19:101-110, illus.
Juglans nigra seed was collected in 18 states and grown in Nebraska. Differences in date of autumn leaf drop and degree of winter dieback were related to latitude of origin. Trees of southern provenance held their leaves later in the fall and suffered more cold injury than those from northern states or Canada.

151. Engle, L. G., and Clark, F. B. 1959. NEW RODENT REPELLENTS FAIL TO WORK ON ACORNS AND WALNUTS. U.S. Forest Service Cent. States Forest Exp. Sta., Sta. Note 138, 2 pp. /Reprinted in S. Lumberman 199(2489):108./
Endrin and thiram repellents were not successful, but it was found that spring seeding

with stratified seed after a year with a good mast crop was best.

152. Ercolani, G. L. 1962. /IDENTIFICATION OF XANTHOMONAS JUGLANDIS IN EMILIA./ Phytopath. Mediterranea, Bologna 2(1):1-10, illus. /In Italian with English summary/

Describes symptoms of a walnut disease and research involving experimental infection of leaves and shoots of Juglans regia and fruit of J. nigra. Despite symptomatic and cultural differences indicated in earlier records, the pathogen was identified. Field tests indicated that the disease could be transmitted through infected pollen.

153. Ezekiel, Walter N., and Nelson, Chris, Jr. 1941. SCLEROTIAL SEEDLING BLIGHT OF BLACK WALNUT. Plant Dis. Reporter 25:336-337.

Sclerotium rolfsii killed scattered 3-week-old Juglans nigra seedlings in a nursery bed in Texas.

154. Falch, J. 1957. Untersuchungsergebnisse über die Walnuss-Veredlung in Freiland. /FIELD-GRAFTING WALNUTS./ Klosterneuburg. Hohere Bundeslehr-und Versuchsanstelt für Wein-und Obstbau. Mitt. Ser. B., Obst und Garten (7):82-88, illus. /English, French, and Spanish summaries./

A historical review of work in Germany and Austria on selection of cold-hardy walnuts and walnut grafting. The Geisenheim budding method is described and recommended.

155. Fankhauser, F. 1904. Der Walnussbaum. Schweiz. Z. Forstw. 55:1-7, 34-40, illus.

Describes growth, yield, and cold temperature damage at several altitudes in Switzerland. Walnuts have been established at altitudes as high as 1,200 meters.

156. Fawcett, Howard S. 1915. Melaxuma of the walnut, Juglans regia (a preliminary report). Calif. Agr. Exp. Sta. Bull. 261: 129-148, illus.

Describes a canker disease caused by Dothiorella gregaria that also attacks Salix lasiolepis. The disease can be controlled by sanitation techniques.

157. Fernandes, C. Taveira. 1954. A nogueira tambem pode ser parasitada pela Phytophthora cinnamomi Rands. /WALNUTS ALSO MAY BE ATTACKED BY P. CINNAMOMI./ Publ. Serv. Flor. aquic. Port. 21(1):19-31, illus. /English summary./

/Not seen./

158. Ffolliott, P. F., Irving, F. D., and Duncan, D. P. 1960. THE GROWTH POTENTIAL OF BLACK WALNUT (JUGLANS NIGRA) IN SOUTHEASTERN MINNESOTA. Univ. Minn. Forest. Note 97, 2 pp.

Gives the results of a study of age, diameter, height, and volume relationships from measurement of 72 trees aged 20-90 years.

159. Fischer, F. 1953. Die Nachzucht des Nussbaumes als Waldbaum: (Juglans regia L. und J. nigra L.). /GROWING WALNUTS (J. REGIA AND J. NIGRA) AS FOREST TREES./ Mitt. Schweiz. Anst. Forstl. Versuchswesen 29 (2): 267-292, illus.

Reports on an experiment started in 1946, using seed of different provenances on two different sites. Seed should be cleaned, stratified, and planted as soon as germination begins. One-year seedlings were used as planting stock. Root pruning is essential when they are planted out in the field which should be in groups at a spacing of 1.5 x 1.5 m. Good results are obtained on poor as well as good soils, provided that they are light and well drained. Release from competing vegetation is necessary.

160. Floor, J. 1951. Het enten van noten. /WALNUT GRAFTING./ Mededel. Inst. Vered. Tuinbouwgew. 24:3-11, illus. /English summary/

A special method of saddle grafting proved best in trials of grafting Juglans regia on J. nigra stocks under glass.

161. Friedrich, H. 1953. Hydrojuglon und Vitamin C in der Walnuss (Juglans regia). /HYDROJUGLONE AND VITAMIN C IN J. REGIA/ Pharmazie 8(1):90-94.

A discussion, based on the literature, of the occurrence of the above and other substances (particularly "apparent vitamin C") in various parts of the tree, and of their biochemical significance, e.g. the function of ascorbic acid in the formation of lignin.

162. Garavel, L. 1954. Enquête sur le comportement du noyer noir d'Amérique en tant que porte-greffe des varietes de noyers indigenes. /AN INQUIRY INTO THE BEHAVIOR OF JUGLANS NIGRA AS A STOCK FOR GRAFTING VARIETIES OF J. REGIA/ Rev. Forêts Franc. 6(4): 217-224, illus.

The author is skeptical about the suitability of black walnut rootstocks, because English walnut scions often develop poorly on them.

163. GARAVEL, L. 1956. A la recherche de noyers résistants au froid. /THE SEARCH FOR FROST-RESISTANT WALNUTS./ Rev. Forêts Franc. 8(8/9): 572-575.

Discusses the reaction of Juglans regia to low temperatures. Mountain races, which have a very short growing season at high altitudes and are therefore safe from this danger, tend to shoot very early when planted at low altitudes and so are liable to damage from late frosts. Strains from low altitudes, when planted in the mountains retain their original vegetative rhythm and tend to suffer from both early and late frosts. Apparently local strains should always be used.

164. Garavel, L. 1960. Une interprétation nouvelle de la morphogenèse de la coque de moix de Juglans. /A NEW EXPLANATION OF THE MORPHOGENESIS OF THE SHELL IN JUGLANS NUTS./ Ann. Ec. Eaux et Forêts, Nancy 17(3):335-375, illus.
A study based on 8 species and several hybrids. The author's thesis is that the shell is of intra-ovarian formation, the two valves being morphological units derived from a pair of fruit-bearing organs of the medullary parenchyma appearing on the floral axis above the level of the carpels.

165. Garavel, L. 1960. Le noyer noir d'Amérique (J. nigra L.). /JUGLANS NIGRA./ Rev. Forêts Franc. 12(6):362-373, illus.
A short account of the silvicultural characters and economic value of the species and its acclimatization in France, and notes on 3 plantations near Strasburg.

166. Garavel, L. 1961. Anomalies florales chez les noyers. /FLORAL ANOMALIES IN JUGLANS./ Rev. Forêts Franc. 13(11):733-735, illus.
A brief description of anomalies noted on J. regia cultivars on various stocks.

167. Gard, M. 1921. Sur le dépérissement des noyers dans quelques regions de la France. Bull. Soc. Pathol. France 8(1):41-44.
/Not seen/

168. Gard, M. 1923. L'Armillaria (Armillariella Karst) mellea Vahl et le pourridié du noyer. Bull. Soc. Pathol. France 10(1):55-62, illus.
/Not seen./

169. Gard, M. 1925. Le pourridié du noyer--principe du traitement curatif. Rev. Bot. Appl. 5(43):217-222.
Treatment of Armillaria mellea infection of Juglans regia.

170. Gard, M. 1926. L'Armillaria mellea Vahl. produit deux sortes de pourridié chez le noyer. Bull. Soc. Pathol. France 13(2):183-185.
A description of Armillaria infections.

171. Gard, M. 1928. Sur les causes de l'infecondite des noyers. Ann. Epiphyt. 14:132-162.
/Not seen./

172. Gard, M. 1934. A propos du Juglans sieboldiana Maxim. Rev. Bot. Appl. 14:106-108.
/Not seen./

173. Garsina, T. D. 1960. /DISEASES OF JUGLANS REGIA ON THE BLACK SEA COAST OF THE CAUCASUS./ Sb. Rabot Les. Khos. Vses. Nauch.-Issled. Inst. Lesovod. 43:134-136.
/In Russian/

174. Gaussen, M. H. 1946. Le noyer, arbre forestier. /WALNUT AS A FOREST TREE./ Rev. Eaux et Forêts 84(6):301-314.
A literature review of the silvics of J. regia fallax and a proposal for further trials.

175. Georgescu, C. C., and Tutunaru, V. 1963. /MALE CATKINS ON ONE-YEAR SHOOTS OF JUGLANS REGIA AND THEIR PHYLOGENETIC SIGNIFICANCE./ Rev. Biol., Bucarest 8(3):261-268, illus.
/In Rumanian/
The inflorescenses described consist of a terminal female catkin and 1 to 3 lateral male catkins--"supernumerary" catkins that flowered later than "ordinary" catkins and produced pollen until August. These inflorescences are thought to represent a throwback to an original paleobotanic type.

176. Gigov, A. 1955. O bukovim šumama sa orahom na području Grdeličke klisure. /BEECH FORESTS CONTAINING JUGLANS REGIA IN THE TERRITORY OF GRDELIČKA KLISURA./ Zb. Rad. Inst. Ekol. Biogeogr., Beograd 6(6):11 pp., illus.
From a review of the literature it is concluded that J. regia is native to the flora of the Balkan peninsula, exhibiting a characteristic difference in its post-glacial forest successions from those of Northern and Central Europe.

177. Glenn, Elizabeth M. 1947. GROWING WALNUTS IN ENGLAND. East Malling Res. Sta. Annu. Rep. (1946):160-164, illus.
Describes propagation and cultivation of Juglans regia in England and notes the more important diseases attacking walnut. Double-tongue grafting on young rootstocks in pots under glass in February or March is 60- to 80-percent successful.

178. Golikov, A. I. 1959. /THE ADVANTAGES OF ELEVATED SITES FOR THE INTRODUCTION OF THERMOPHILOUS WOODY PLANTS./ Bot. Zh. 44(9): 1278-1281. /In Russian/

179. Golikov, A. I. 1960. /POINTS ON ESTABLISHING JUGLANS REGIA STANDS IN MOLDAVIA./ Les. Khoz. 14(2):23-28, illus. /In Russian/
Discusses rates of growth, mixtures, plantation layout, etc.

180. Graebener. 1911. Die in Deutschland winterharten Juglandaceen. Mitt. Deut. Dendrol. Ges. 20:186-219, illus.
Botanical description and synonymy for the Juglandaceae with some discussion of adaptability to European conditions. Eight Juglans species are considered winterhardy in Germany.

181. Gravatt, G. F., and Stout, Donald C. 1949. DISEASES AFFECTING THE SUCCESS OF TREE CROP PLANTINGS. N. Nut Growers Ass. Annu. Rep. 39(1948):60-68, illus.
Includes 3 pages on distribution and symptoms of bunch disease on walnuts and butternut.

182. Gries, G. A. 1943. JUGLONE, THE ACTIVE AGENT IN WALNUT TOXICITY. N. Nut Growers Ass. Annu. Rep. 34:52-55.
Juglone is effective as a fungicide for controlling black spot of roses.

183. Gries, G. A. 1943. JUGLONE (5-HYDROXY-1, 4-NAPTHOQUINONE)--A PROMISING FUNGICIDE. Phytopathology 33(12):1112. (Abstr.)
Juglone approaches the toxicity of copper in Bordeaux mixture. Juglone does not injure foliage when sprayed on cutinized surfaces, but it is extremely deleterious to germinating seeds.

184. Griggs, W. H. 1953. POLLINATION REQUIREMENTS OF FRUITS AND NUTS. Calif. Agr. Exp. Sta. Ext. Serv. Cir. 424, 35 pp., illus.
Walnut pollen may be carried as far as a mile, but it generally is distributed effectively only within 200 to 300 feet. Top-grafting with a compatible variety is effective in increasing fruit set in strongly dichogamous varieties. Only about one tree in nine need be topworked.

185. Guinier, E. 1905. Le noyer. Rev. Eaux et Forêts 44:297-304.
Performance of J. regia in France.

186. Guinier, P. 1952. La question du noyer. /WALNUT./ Compte Rend. Acad. Agr. France 39(15):587-591.
Includes notes on factors to be taken into account when growing walnut for timber production.

187. Guinier, P. 1955. Le noyer, producteur de bois. /THE WALNUT AS A TIMBER TREE/ Rev. Forêts Franc. 3:157-177, illus.
Discusses the cultivation of walnuts (primarily Juglans regia) for timber, the choice of site and silvicultural methods, and the economic importance of this species in France.

188. Guinier, Ph. 1917. Sur une maladie du noyer due à l'Armillaria mellea. Bull. Soc. Pathol. France 4:27-29.

189. Haas, A. R. C. 1929. COMPOSITION OF WALNUT TREES AS AFFECTED BY CERTAIN SALTS. Bot. Gaz. 87(3):364-396, illus.
Effect of saline soils on inorganic constituents of trunk, shoots, leaves, husks, and kernels. Mature husks are extremely rich in bases.

190. Haas, A. R. C. 1939. ROOT TEMPERATURE EFFECTS ON THE GROWTH OF WALNUT AND AVOCADO SEEDLINGS. Calif. Avocado Ass. Yearbook 1939:96-102.
With outside temperature around 35° to 37° C., J. regia seedlings developed heaviest leaves at 24° C. root temperature, almost as large at 17° C., about 1/5 as heavy at 31° and 10° C. Fresh weight of trunk and roots grown at 17° and 24° C. root temperature was about twice as great as at 10° or 31° C; dry weight ratio was about 3/2. All plants died at root temperature of 38° C.

191. Hadfield, M. 1958. JUPITER'S TREE: THE WALNUT IN BRITAIN. Quart. J. Forest. 52(3): 191-196, illus.
Ancient references to the tree and its name, and to its early history in Britain are discussed. It was probably growing in this country by A.D. 1000, and in the 16th and 17th centuries large plantings were made. Notes on the raising of the tree are given.

192. Hamilton, D. W. 1963. INTERESTING DIPTERA COLLECTED IN INDIANA WALNUT GROVES. Indiana Acad. Sci. Proc. 72(1962):154-157.
Nine species were collected, especially Rhagoletis sauvis, the walnut husk maggot, which was destroying J. regia crops in western Indiana each year. Two malathion sprays in August controlled this pest.

193. Hamond, Joyce B. 1935. THE MORPHOLOGY, PHYSIOLOGY AND MODE OF PARASITISM OF A SPECIES OF CHALAROPSIS INFECTING NURSERY WALNUT TREES. J. Pomol. Hort. Sci. 13:81-107
This fungus disease, caused by Chalaropsis

thielavioides, is important only when walnuts are being grafted. The fungus grows over cut surfaces of walnut stocks and scions, preventing callus formation. The disease can be controlled by spraying the propagating house with 1-percent formalin in the spring before grafting and by painting the walnut stock with formalin before cutting it.

194. Hamond, Joyce E. 1935. RECENT DEVELOPMENTS IN WALNUT GROWING IN ENGLAND. J. Roy. Hort. Sci. 60(11): 501-507.
Includes a section on propagation, covering production of clonal rootstocks by layering, greenhouse grafting, and field budding.

195. Hance, H. F. 1876. ON THE HUSKLESS WALNUT OF NORTH CHINA. J. Bot. :15-16.
They are assumed to be a form of Juglans regia.

196. Hansen, C. J., and Hartmann, H. T. 1951. INFLUENCE OF VARIOUS TREATMENTS GIVEN TO WALNUT GRAFTS ON THE PERCENTAGE OF SCIONS GROWING. Amer. Soc. Hort. Sci. Proc. 59: 193-197, illus.
Success rate in bark grafting Juglans regia onto J. hindsii rootstock can be increased by covering the scion with moist peat moss or by whitewashing both scion and stock.

197. Hansen, Elmer. 1943. ASCORBIC ACID CONTENT OF WALNUT HULLS. Amer. Soc. Hort. Sci. Proc. 42:265-266.
Ascorbic acid content (dry weight basis) ranged from 4.2 percent for Juglans regia var. Mayette, to 8.3 percent for a J. nigra selection.

198. Hansen, Norman J., and McComb, A. L. 1958. GROWTH OF PLANTED GREEN ASH, BLACK WALNUT, AND OTHER SPECIES IN RELATION TO OBSERVABLE SOIL-SITE CHARACTERISTICS IN SOUTHEASTERN IOWA. J. Forest.56(7):473-480, illus.
In 18-year-old plantations the growth of black walnut was significantly correlated with (1) the texture and depth of the rooting zone, (2) presence of mottling and iron concretions indicative of internal drainage and aeration, and (3) color of the surface layers, indicative of organic matter content and possibly plant nutrient supply. All correlation coefficients were low.

199. Hanssens, J. 1938. Les noyers. Soc. Cent. Forest. Belg. Bull. 41(3):97-107.
With an appendix, "Croisements de noyers" by A. Meunissier, pp. 107-113.
A description of several walnut species and hybrids, especially the "Royal" and "Paradox" hybrids of Burbank, and a discussion of suitable grafting methods. The appendix is a literature review of hybrids reported since 1834.

200. Hatton, J. B., and Witt, A. W. 1933. WALNUTS: PROPAGATION. East Malling Res. Sta. Annu. Rep. 21:37.
Five Juglans species and two varieties are propagated by layering in stool beds. Covering with a mixture of 'spent' hops and sand worked well. Rooting percentage seems to improve as stools become older and vigor of annual shoots declines.

201. Heflin, Eldon L. 1965. BLACK WALNUT PLANTATION 88 YEARS OLD. J. Forest. 63: 700-701, illus.
A 3.6-acre walnut stand established by seeding nuts in a cornfield now contains 384 black walnut trees ranging from 6 to 28 inches d.b.h. Original spacing was about 6 x 15 feet; stand has never been thinned. Present volume averages 5,935 board feet per acre (Doyle), and basal area is 133 square feet per acre.

202. Heimsch, Charles, Jr., and Wetmore, Ralph H. 1939. THE SIGNIFICANCE OF WOOD ANATOMY IN THE TAXONOMY OF THE JUGLANDACEAE. Amer. J. Bot. 26(8):651-660, illus.
Average dimensions for Juglans xylem elements: vessel member length--592 microns; vessel diameter--191 microns; fiber length--1503 microns.

203. Heldreich, Theodor von. 1880. Beitrage zur Kenntniss der Vaterlandes und der geographischon Verbreitung der Rosskastanie, des Nussbaums und der Buche. Verhandl. Bot. Ver. Prov. Brandenburg 21:139-153.
Natural range of Juglans regia.

204. Hemenway, Ansel F. 1911. STUDIES IN THE PHLOEM OF THE DICOTYLEDONS. I. PHLOEM OF THE JUGLANDACEAE. Bot. Gaz. 51:131-135, illus.
Six species of Juglandaceae studied, including Juglans nigra and J. cinerea, possess well-developed lateral sieve plates which are similar to sieve plates on the end walls. This characteristic suggests a rather close relationship to gymnosperms or vascular cryptogams.

205. Hennig, K., and Ohske, P. 1940. Der Vitamin C-Gehalt der Früchte und Blätter von Juglans regia and Juglans nigra. /VITAMIN C CONTENT OF WALNUT FRUIT AND LEAVES./ Biochem. Z. 306:16-23.

Juglans nigra leaves and fruit were an even richer source of vitamin C than J. regia. Highest vitamin C content was in the green shells of J. nigra.

206. Henrotin, Marie. 1933. Introduction a l'étude de bourgeons séries: Organographie des tiges dans le genre Juglans. Bull. Soc. Roy. Bot. Belg. 66(II,16):65-79. /Not seen./

207. Hixson, Ephraim. 1941. THE WALNUT DATANA. Okla. Agr. Exp. Sta. Bull. B-246, 29 pp., illus.
This defoliator has 5 larval instars; the first eats only the upper layer of leaf cells; the others the entire leaf. Lead arsenate plus lime spray is an effective control, as is pruning and burning branches containing clusters of larvae through the 4th instar.

208. Hoffman, Rudolf. 1942. Untersuchungen über die Keimung und das Jugendwachstum der Schwarz- und Walnuss. /GERMINATION AND EARLY GROWTH OF BLACK AND ENGLISH WALNUT./ Forstwiss. Centralbl. 64(3/4):59-91, illus.
Discusses the effect of seed orientation on development of straight seedlings and the effects of light, site quality, frost, and animal damage on loss of growth of terminal buds, development of lateral buds, and future stem straightness and forking.

209. Holch, A. E. 1931. DEVELOPMENT OF ROOTS AND SHOOTS OF CERTAIN DECIDUOUS TREE SEEDLINGS IN DIFFERENT FOREST SITES. Ecology 12:259-298, illus.
Juglans nigra was grown from seed on three sites in southeastern Nebraska: a steep north-facing slope in a typical Tilia community, a southwest slope in a Quercus macrocarpa-Q. velutina forest, and a gentle slope near a prairie hilltop. After 3 years the walnut had outgrown seedlings of shellbark hickory, bur oak, northern red oak, and basswood on both the oak forest and prairie sites, but only the basswood survived on the basswood forest site. The 3-year-old walnut root system was more than 9 feet deep and 14 feet in diameter on the prairie site. The walnut root system combines a deep taproot with strong laterals.

210. Holdt, Friedrich von. 1928. Juglans nigra, die Schwarznuss in ihrer Heimat. /BLACK WALNUT IN ITS NATIVE HABITAT./ Mitt. Deut. Dendrol. Ges. 40:201-207, illus.
Development of J. nigra in various sections of its natural range. Utilization of sapwood and rootwood.

211. Holm, Theo. 1921. MORPHOLOGICAL STUDY OF CARYA ALBA AND JUGLANS NIGRA. Bot. Gaz. 72:375-389, illus.
A detailed description of flowers, root, stem, leaf, cotyledons, and the young seedling.

212. Horitsu, Hirokai, and Sakamura, Sadao. 1956. /JAPANESE GREEN WALNUT SHELLS./ Nippon Nogei-kagaku Kaishi 30:330-331. /In Japanese?/
10.2 kg. of green Juglans sieboldiana husks yielded 2.77 g. of juglone.

213. Howard, W. L. 1945. LUTHER BURBANK'S PLANT CONTRIBUTIONS. Calif. Agr. Exp. Sta. Bull. 691, 110 pp., illus.
Production of hybrid walnuts is described on pp. 37-42. The 'Royal' walnut (Juglans hindsii x nigra) is recommended as a timber tree.

214. Hristov, Al. /Khristov/ 1940. /BACTERIOSIS IN THE WALNUT./ Gradinarstvo 21: 53-55. /In Bulgarian./
Varietal differences in susceptibility of J. regia to Pseudomonas juglandis.

215. Hubicki, von. 1926. Juglans nigra. Wiener Allg. Forst- und Jagd zeitung 44(6): 31-32.
Recommends increased planting of black walnut in central Europe, discusses site selection, and suggests that on good sites growth should reach 20 inches d.b.h. and 65 to 80 feet tall in 50 to 60 years.

216. Hutchins, Lee M., and Webster, Horace V. 1947. GRAFT-TRANSMISSIBLE BROOMING DISEASE OF WALNUT. Phytopathology 37:11. (Abstr.)
The disease is transmitted by means of patch-bark grafts in Juglans nigra and J. cordiformis var. ailantifolia.

217. Il'in, S. G. 1959. /THE EFFECT OF MINERAL NUTRITION ON THE SEEDLING GROWTH OF ORNAMENTAL TREES./ Nauch. Dokl. vyssh. Shkoly, Biol. Nauk (4):140-146, illus. /In Russian/
Differential fertilization of Juglans mandshurica with nitrogen, potassium, and phosphorus. Plants treated with highest level of P grew 3 times as well as those treated with highest level of N.

218. Illick, Joseph S. 1921. THE AMERICAN WALNUTS. Amer. Forest. 27:699-704, illus.
A descriptive article, including tables of paired characteristics useful in differentiating Juglans from Carya and different Juglans species from one another.

219. Ito, K., and Kobayashi, T. 1956. /AN-

THRACNOSE AND SPOT ANTHRACNOSE OF WALNUT TREES./ J. Jap. Forest. Soc. 38(11):452-455, illus. /In Japanese/

Gives morphological characters with illustrations, including some of leaf and twig lesions, for species of Gloeosporium, Glomerella and Sphaceloma.

220. Ito, K., and Kobayashi, T. 1957. NOTES ON SOME LEAF-SPOT DISEASES OF BROADLEAVED TREES, IV. A NEW SPECIES OF SPHAERULINA CAUSING FROSTY MILDEW OF WALNUT TREES. Meguro Forest Exp. Sta. Bull. 96, 32 pp., illus.

221. Jahn, E. 1930. Bemerkenswerte Gehölze im Botanischen Garten der Forstlichen Hochschule in Hann. Münden. /NOTABLE TREES IN THE BOTANICAL GARDEN AT HANNOVER/MÜNDEN./ Mitt. Deut. Dendrol. Ges. 42:42-46, illus.

Describes flowers and fruit of a Juglans sieboldiana x cinerea hybrid in the garden. The tree is 30 years old and has good form.

222. Jazirai, M. H. 1956. /FUTURE OF THE WALNUT TREE IN PERSIA./ Iran. Forest Serv. Mon. Bull. 7(1):13-15. /In Persian/

A short account of the post-war rise in demand, both internal and external, for the timber of Juglans regia. Exports have risen from 1,637 cu. m. in 1950-51 to 7,248 cu. m. in 1953-54 and are still rising; they now constitute 60-70% of total timber exports. The author considers that there is as yet no danger of a shortage.

223. Jepson, Willis Linn. 1908. THE DISTRIBUTION OF JUGLANS CALIFORNICA WATS. S. Calif. Acad. Sci. 7:23-24.

Proposes that walnut in northern California be separated into variety Hindsii.

224. Jepson, Willis Linn. 1910. TERATOLOGY IN CALIFORNIA TREES. IN: THE SILVA OF CALIFORNIA. Mem. Univ. Calif. 2:54-56, illus.

Describes a Juglans californica tree one branch of which bears bisexual flowers. These flowers are borne on apparently pistillate catkins, but contain 12 to 19 stamens. When they are bagged before pollen shedding no fruit develops.

225. Johnson, Otis B. 1931. WALNUT WOOD NOMENCLATURE. J. Forest. 29:1212-1213.

U.S. Federal Trade Commission rules that "walnut" should be applied only to wood of the genus Juglans and lists accepted trade names for several species and countries of origin of walnut wood.

226. Johnston, D. R. 1952. STRUCTURE DRAWINGS TO "SPECIMEN WOODS". Sheet 9. Wood 17(3):98, illus.

Includes European walnut (Juglans regia).

227. Johnston, D. R. 1952. STRUCTURE DRAWINGS TO "SPECIMEN WOODS". Sheet 12. Wood 17(6): 224, illus.

Includes American black walnut (Juglans nigra).

228. Johnston, D. R. 1953. STRUCTURE DRAWINGS TO "SPECIMEN WOODS". Sheet 26. Wood 18(8):307, illus.

Includes butternut (Juglans cinerea).

229. Johnston, D. R. 1956. STRUCTURE DRAWINGS TO "SPECIMEN WOODS". Sheet 56. Wood 21(2):57, illus.

Includes Japanese walnut (Juglans sieboldiana).

230. Joly, R. 1960. Additions à la faune des xylophages du noyer. /ADDITIONS TO THE WOOD-BORER FAUNA ON WALNUT./ Rev. Forêts Franc. 12(1):35-43, illus.

Describes, by families, known and newly discovered pests of the order Coleoptera. The list of Cerambycidae includes 6 species not previously noted for walnut. Suggestions for wood protection are given.

231. Jones, L. R., and Morse, W. J. 1903. THE SHRUBBY CINQUEFOIL AS A WEED. Vermont Agr. Exp. Sta. Annu. Rep. 16:173-190, illus.

This weed cannot live within the root zone of butternut trees.

232. Kalmykov, S. S. 1952. /'NEST' SOWING OF JUGLANS REGIA IN KAZAKHSTAN./ Les. Khoz. 5 (10):38-41. /In Russian/

233. Kämmerling, E. 1931. Ein spätaustreibender Walnussbaum. /A LATE-LEAFING WALNUT./ Mitt. Deut. Dendrol. Ges. 43:419.

It may be valuable for breeding resistance to late spring frosts.

234. Kanchaveli, G. I. 1963. /DATA ON MOVEMENT OF PERSIAN WALNUT AND OTHER WALNUT SPECIES INTO HIGHER MOUNTAIN AREAS OF GEORGIAN S. S. R./ Akad. Nauk Gruz. SSR. Inst. Lesa. Tr. 12:145-155. /In Russian/

235. Kaniewski, K., and Hausbrandt, L. 1963. /DEVELOPMENT OF SCLEREID TISSUE IN THE FRUIT OF JUGLANS REGIA./ Rocz. Dendrol. Pol. Tow. Bot., Warsaw 17:47-72, illus. /In Polish, English summary pp. 70-72./

A detailed account of morphological development of the maturing shell (mesocarp) of English walnut.

236. Karsten, G. 1902. Ueber die Entwickelung

der weiblichen Blüthen bei einigen Juglandaceen. /DEVELOPMENT OF FEMALE FLOWERS BY SOME JUGLANDACEAE./ Flora (Jena) 90:316-333, illus.

Considers double fertilization and parthenogenesis in several Juglans species from the standpoint of the taxonomic relationship of the Juglandaceae to other families.

237. Kavec'ka, G. O. 1964. /DEVELOPMENT OF THE MALE GAMETOPHYTE IN JUGLANS REGIA./ Ukr. Bot. Zh. 21(1):52-57, illus. /In Ukrainian with English summary/

Pollen was found to germinate 3 hr. after entering the stigma; after 6 hr., its sperm cells entered the pollen tube where they are often separately discernible. Artificial germination of pollen was obtained on dry glass objects placed in moist chambers, starting after 5 hr. at 20-21°C. After 24 hrs., the pollen tubes reached a length of 7-9 times the diameter of the pollen grains.

238. Kavachaya, A. A., and Tokar, L. O. 1963. /THE DELETERIOUS EFFECT OF A LARGE AMOUNT OF POLLEN IN THE POLLINATION OF JUGLANS REGIA./ Bot. Zh. 48(4):580-585. /In Russian/

Use of an excessive amount of pollen causes premature wilting of the stigma. Ten to 18 pollen grains per stigma is optimum.

239. Kaylor, Joseph F., and Randall, Leslie R. 1931. METHODS OF COLLECTING, STRATIFYING, AND PLANTING BLACK WALNUTS IN INDIANA. Indiana Dep. Conserv. Pub. 104 (Div. Forest. Bull. 12), 8 pp., illus.

Recommends autumn collection, stratification in sand, and direct seeding on good sites in the spring.

240. Kellogg, L. F. 1939. SITE INDEX CURVES FOR PLANTATION BLACK WALNUT--CENTRAL STATES REGION. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 35, 3 pp., illus.

Curves cover a site quality range from 40 feet to 80 feet at age 50.

241. Kellogg, L. F. 1948. A VOLUME TABLE FOR BLACK WALNUT TREES IN NATURAL STANDS IN IOWA. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 42, 1 p.

Table based on 160 single-stemmed trees.

242. Kemmer, E. 1935. Veredlungsversuche mit Walnüssen. Gartenwelt 38:465-466, illus.

Describes a successful greenhouse cleft-grafting method, using 3-month-old seedlings for rootstocks.

243. Kemmer, E. 1937. Zur Frage: Walnussveredlung. Gartenwelt 41:476-468, illus.

Describes a successful ring-budding method used in the field. Mid-June budding on stock plants in their second growing season gave the best results.

244. Kemmer, E. 1938. Die Walnussveredlung. /WALNUT GRAFTING./ Forsch. Sonderheft 8: 387-389.

Juglans regia seedlings are recommended as rootstocks for J. regia scions, as well as J. nigra understocks. Waxing of grafts is neither necessary nor desirable. Grafting at the root collar is not only unnecessary but increases the chance of rot. Grafts can be made at any other point where rootstock and scion are of like size. Late winter, early spring, and the last half of August are good times for grafting. Potting of rootstocks before grafting is unnecessary; instead, bench grafting is recommended, followed by lining out in propagating beds. These methods used for 959 grafts yielded 77-percent success. Field budding is done on 1- and 2-year-old seedlings in July and August. The ring budding method has been most successful.

245. Kemmer, E. 1949. Die Walnussveredlung. /WALNUT GRAFTING./ Inst. Obstbau Univ. Berlin. Merkblatt 5, ed. 2, 15 pp., illus.

Includes a historical summary of trade in Persian walnuts and a detailed description of several grafting and budding methods.

--- Khristov, Al. (See Hristov, No. 214).

246. King, Woodrow W. 1957. A GUIDE FOR EVALUATING BLACK WALNUT SAWLOG QUALITY. Tenn. Valley Authority Div. Forest. Relat. Rep. 218-57, 20 pp., illus.

A quality-class system based on clear faces on walnut logs is related to lumber yield and can be used to develop a log price structure.

247. King, Woodrow W. 1958. EVALUATING QUALITY OF BLACK WALNUT SAWLOGS. Forest Prod. J. 8:243-248, illus.

Log grades based on size and clear faces and their relation to lumber yield.

248. Kinnison, A. F. 1924. TOP-WORKING FRUIT AND NUT TREES. Ariz. Univ. Agr. Exp. Sta. Circ. 49, 23 pp., illus.

The Biederman bark graft method for top-working Juglans major is described.

249. Kisser, Josef. 1939. Häufung von Bildungsabweichungen an den Blättern von Juglans regia L. als Folge von Spätfrösten. /INCREASE IN THE NUMBER OF LEAF DEFORMITIES IN J. REGIA FOLLOWING LATE FROSTS./ Gartenbauwissenschaft 13(1):94-110, illus.

/Appeared also in Anz. Akad. Wiss. Wien, 1938./
Large, simple leaves were common, as well as occasional pairs of compound leaflets.

250. Kljushnik, P. I. 1950. /FUNGUS DISEASES OF EXOTICS./ Les. Khoz. 3(7):71-72, illus. /In Russian/
Includes Juglans regia.

251. Klose, A. A.; Peat, Jean; Fevold, H. L. 1948. VITAMIN C CONTENT OF WALNUTS (PERSIAN) DURING GROWTH AND DEVELOPMENT. Plant Physiol. 23:133-141, illus.
Vitamin C content of walnuts reaches a maximum of 15 percent (moisture free) 40 days after blossoming, then decreases to 1 to 2 percent at maturity. At 131 days after blooming, vitamin C was distributed as follows in the fruit: hull - 52 percent, tissue underlying the shell - 32 percent, shell - 15 percent, kernel - 1 percent.

252. Klose, A. A., Stark, J. B., Purvis, G. G., and others. 1950. ASCORBIC ACID FROM WALNUT HULLS. Indus. Eng. Chem. 42(2):387-391.
Waste green walnut hulls yield about 0.5 percent ascorbic acid from a total crystalline yield of about 25 to 50 percent. Details of experimental extraction, purification, and crystallization are given. The process is considered only marginally economical.

253. Kluge, Klaus. 1955. Verstärktes Auftreten vol Walnüssen mit unentwickelten Schalen. /INCREASED OCCURRENCE OF WALNUTS WITH UNDEVELOPED SHELLS./ Deut. Gartenbau 2(8): 210-211, illus.
Poor shell development in paper-shell walnuts may be due to bird-peck damage.

254. Knight, Thomas Andrew. 1822. UPON THE PROPAGATION OF VARIETIES OF THE WALNUT TREE, BY BUDDING. Roy. Hort. Soc. Trans. 3 (Ser. I):133-137.
Recommends use of small buds from near the base of the current year's growth.

255. Knight, Thomas Andrew. 1835. UPON GRAFTING THE WALNUT TREE. Roy. Hort. Soc. Trans. 1 (Ser. II):214-217.
Recommends allowing scions to initiate growth normally, then, after a week to 10 days, removing new sprouts and grafting in any routine manner.

256. Knösel, D. /n.d./ Zum Bakterienbrand der Walnussbäume, Isolierung und Untersuchung des Erregers. /BACTERIAL BLIGHT OF JUGLANS REGIA, ISOLATION AND STUDY OF THE PATHOGEN./ Z. Pflanzenkrankheit 68(10/11):638-642, illus. /English summary/
Symptoms of trees near Stuttgart suggest that the pathogen was Xanthomonas juglandis, although cultural characteristics of the organism isolated differed from those of an authentic culture from the American Type Culture Collection.

257. Koltay, G. 1955. /TENDING STANDS OF POPLAR AND OTHER SPECIES./ Erdész. Kutatás. 1:3-16, illus. /In Hungarian with English and German summaries/
Includes Juglans nigra.

258. Kondo, T., and Suda, M. 1956. /ON THE HEARTWOOD COMPONENTS OF JUGLANS SIEBOLDIANA MAXIM./ J. Jap. Wood Res. Soc. 2(6):221-222. /In Japanese with English summary/
Gallic acid, beta-sitosterol, and ellagic acid were isolated and identified, and glucose, arabinose, xylose, and rhamnose detected by chromatographic methods.

259. Konovalov, I. N., Lerman, R. I., Mikhaleva, E. N., and others. 1961. PECULIARITIES OF THE CHANGES OF PHYSIOLOGICAL PROCESSES IN PLANTS CORRELATED WITH FROST HARDINESS. Recent Advances in Bot. 1 (Sect. 2):198-199. Univ. Toronto Press.
As contrasted to non-hardy plants, frost-hardy Juglans regia individuals begin CO_2 assimilation earlier in the morning and contain more water during the period of intense growth; the hardy plants, however, show a greater water loss, particularly in non-bound water, at the end of vegetative growth. Short shoots which complete growth early in the season are more frost resistant than long shoots.

260. Konovalov, I. N., Mikhaleva, E. N., Shchepot'ev, F. L., and Pobegailo, A. J. 1958. /USE OF RADIOACTIVE CARBON IN THE INVESTIGATION OF PHOTOSYNTHESIS IN PLANTS OF VARIOUS SPECIES OF THE GENUS JUGLANS./ Fiziol. Rast.-Agrokhim. Pochvoved. 9(?):72-79.
During the first half of the summer, the diurnal photosynthesis curve of four Juglans species growing near Kharkov was biapical; in the second half it had only one peak. J. regia had a longer period of intensive growth than the other three species, and therefore higher photosynthetic activity during the second half of the summer. Seasonal photosynthetic trends showed two peaks of activity for all four species: at the beginning and end of summer.

261. Kormilitsyn, A. M. 1935. Perspektivy razvedeniya Amerikanskogo chernogo orekha v SSSR. /PROSPECTS OF CULTIVATING JUGLANS NIGRA IN THE U.S.S.R./ Tr. po Prikladnou Bot. , Genet. i

Selektsii, Leningrad (Ser. X) 2:101-108. /In Russian, English summary/
Recommends areas where it should be planted.

262. Korovin, E. P., and Tuychiev, M. 1948. /SPRING AND SUMMER FLOWERING OF WALNUT IN CENTRAL ASIA./ Bot. Zh. 33(3):362-369, illus. /In Russian/

263. Krajicek, J. E. 1960. SOME FACTORS AFFECTING OAK AND BLACK WALNUT REPRODUCTION. Iowa State Coll. J. Sci. 34(4):631-634.
Up to 68 percent of Juglans nigra seed germinated when planted 1 inch deep in soil, but no seed germinated when placed on top of soil or litter. All the seed was removed (presumably by rodents) from unscreened plots within 2 days.

264. Kramer, Paul J. 1943. AMOUNT AND DURATION OF GROWTH OF VARIOUS SPECIES OF TREE SEEDLINGS. Plant. Physiol. 18:239-251, illus.
Juglans nigra seedlings in eastern North Carolina began height growth in late March or early April, completed about 50 percent of their growth by the first of May, and completed their height growth in late July or early August after a growing season of 130 to 135 days.

265. Kravchuk, Yu. P. 1962. /FEATURES OF ROOT-SYSTEM STRUCTURE OF QUERCUS ROBUR AND JUGLANS REGIA IN S. MOLDAVIA./ Les. Zh., Arhangel'sk 5(1):16-20, illus. /In Russian/
Describes, with tabulated data, the root systems of oak and walnut of various ages in pure stands and mixtures on chernozem soils, and concludes that, contrary to common opinion, mixtures of the two species would be more drought-resistant and more productive than pure stands.

266. Kreitmann, L. 1923. Le greffage du noyer. /GRAFTING JUGLANS REGIA./ Rev. Eaux et Forêts 61:539-546, illus.
Describes a successful method of establishing grafted walnuts in pots in the greenhouse.

267. Kronfeld, M. 1887. Beitrage zur Kenntnis des Walnuss (Juglans regia L.). Bot. Jahrbuch Engler 9(3):280-304, illus.
Flower and fruit morphology of J. regia.

268. Krumbiegel-Richter, Brigitte. 1955. Beobachtungen über die Entwicklung der Bluten bei Walnuss (Juglans regia). /DEVELOPMENT OF ENGLISH WALNUT FLOWERS./ Arch. Gartenbau 3(2):105-114, illus.
Differentiation of female flowers begins in October, and that of male flowers in May of the year before blooming.

269. Kuppuswami, B. S. 1954. A NOTE ON THE POLLINATION AND FRUIT SET IN WALNUT (JUGLANS SP.). S. Indian Hort. 2:153, illus.
Supplemental hand pollination increased fruit set by about 5 percent over normal.

270. Kurdiani, S. 1936. /SELECTION OF WALNUTS./ Soviet Subtrop. 1(17):16-24, illus. /In Russian, English summary p. 24/
Suggests criteria for selecting Juglans regia in Transcaucasia for nut and timber production.

271. Kuznetsov, P. V. 1959. /EFFECT OF FERTILIZERS AND WATERING ON THE GROWTH AND WINTER-HARDINESS OF JUGLANS REGIA./ Les. Khoz. 12(7):77. /In Russian/
Tabulates results which show that seedlings given (a) 120 kg. PK fertilizer/ha. were shorter and more slender but suffered far less frost damage in winter in the N. Caucasus than those given(b) 120 kg. NPK/ha. + 60 tons of manure, and (c) 90 kg. NPK/ha. + 60 tons of manure + 2 waterings.

272. Laffers, A. 1963. Frühes Fruchten und Zweite Triebe der Walnuss (Juglans regia L.). /EARLY BEARING AND THE PRODUCTION OF LAMMAS SHOOTS BY WALNUT./ Arch. Gartenbau 11:163-171, illus. /Russian and English summaries/
Some 3-year-old grafted trees produced fruit. Lammas shoots were produced on the fruiting branches of the young bearing trees.

273. LaGrange, E. 1954. L'action bactéricide de l'extrait des feuilles de noyer, Juglans regia. /THE BACTERICIDAL ACTION OF AN EXTRACT OF LEAVES OF J. REGIA./ Compt. Rend. Soc. Biol. 148(23/24):2097-2098.

274. LaGrange, E. 1956. L'action antibiotique de Juglans regia L. /THE ANTIBIOTIC ACTION OF J. REGIA./ Compt. Rend. Soc. Biol. 150(3): 613-615, illus.
There appear to be 4 active principles in fresh leaves, 1 bactericidal and 3 inhibiting the growth of Bacillus spp. The first is found in the leaves from the beginning of the season until mid-August, and the other 3 until later in the season.

275. Lake, E. R. 1913. THE PERSIAN WALNUT INDUSTRY OF THE UNITED STATES. U.S. Dep. Agr. Bur. Plant Ind. Bull. 254, 112 pp., illus.
Description, site requirements, varieties, propagation, culture, and insect and disease pests of Juglans regia.

276. Lamb, Geo. N. 1940. FIGURE IN WOOD. N. Nut Growers Ass. Annu. Rep. 31:28-33.
The original 'Lamb' curly walnut shows figure throughout the tree, but grafts made with scions from the curly parent show no figure after 18 years.

277. Langdon, LaDema M. 1934. EMBRYOGENY OF CARYA AND JUGLANS, A COMPARATIVE STUDY. Bot. Gaz. 96:93-117, illus.
In eastern Maryland, J. mandshurica female flowers are visible in early May and pollination begins about May 6. Fertilization follows in 4 or 5 days and embryo division 6 to 7 days later. Seed coats are approximately full size by June 15 (4 to 5 weeks after pollination).

278. Langdon, LaDema M. 1939. ONTOGENETIC AND ANATOMICAL STUDIES OF THE FLOWER AND FRUIT OF THE FAGACEAE AND JUGLANDACEAE. Bot. Gaz. 101:301-327, illus.
The families are considered to be somewhat closely related, with the Juglandaceae the more phylogenetically advanced.

279. Larsen, Esther Louise. 1942. PEHR KALM'S OBSERVATIONS ON BLACK WALNUT AND BUTTERNUT TREES. Agr. Hist. 16(3):149-157.
A translation of articles by the Swedish botanist published in 1767 and 1769 describing characteristics and uses of Juglans nigra and J. cinerea in mid-eighteenth-century North America.

280. Lazarescu, C. 1953. /MICHURINIST METHODS OF FOREST TREE BREEDING./ Rev. Pădurilor 68(8):3-6, illus. /In Rumanian/
Includes some notes on Juglans nigra x J. regia hybrid.

281. Lebedinova, N. S., 1961. /THE MOISTURE REGIME OF THE DARK BROWN SOILS OF THE SOUTHERN KIRGHIZ JUGLANS REGIA FORESTS/ Pochvoved.5:21-33, illus. /In Russian with English summary/
Emphasis is on the water regime of soils of walnut forests. Suggests suitable cultural practices for walnut plantations.

282. Leroy, Jean-F. 1953. Notes géographiques sur les noyers tropicaux (Juglans et Carya). Rev. Int. Bot. Appl. Agr. Trop. 33 (367/368): 221-225, illus.
Includes a map indicating that the genus Juglans in the western hemisphere extends from about 50° N. latitude to 35° S.

283. Limberk, J. 1953. /MORE ON GRAFTING WALNUTS./ Sb. Cesk. Akad. Zemědel. Věd., Ser. A. 26:357-362, illus. /In Czech, with Russian summary/
Modified chip budding, both indoors and outdoors in early April, was better than grafting or ring budding.

284. Limberk, J. 1964. /MAIN THING IN THE CULTURE OF WALNUT TREES./ Ovocnarstri a Zelinarstri 12(9):233. /In Czech./
Grafting J. regia.

285. Linsbauer, L. 1909. Die Traubennuss. /THE CLUSTER-NUT./ Naturwiss. Z. 7:43-45, illus.
Describes a J. regia tree in Austria that bears as many as 13 nuts in a cluster.

286. Liu, C. -H. 1962. /DAILY AND SEASONAL COURSE OF PHOTOSYNTHESIS IN ACER SPP. AND JUGLANS REGIA IN RELATION TO ADAPTATION TO NEW ENVIRONMENTAL CONDITIONS./ Bot. Zh.47 (5):697-705, illus. /In Russian/

287. Liu, W.-S. 1963. /GERMINATION OF JUGLANS POLLEN./ Sci. Silvae, Peking 8(3):272-274, illus. /In Chinese/
Germination percents are tabulated for 3 species on various nutrient media.

288. Lloyd, F. E. 1921. ABSCISSION OF FRUITS IN JUGLANS CALIFORNICA QUERCINA. Roy. Soc. Canada Proc. III, 14(Sec. V):17-22, illus. /Not seen./

289. Logginov, B. I. /1964/ /PRINCIPLES OF FIELD-PROTECTIVE FORESTATION./ /Translated from Russian to English by A. Gourevitch. Available from U.S. Dep. Commerce OTS 64-11010, 302 pp., illus./
Peak height increment in Juglans regia plantations in the Ukraine is reached in the first 10 years, but remains fairly constant at about 1 foot per year from age 15 through age 60. Collection zones for winter-hardy seed are listed. Irrigated J. nigra plantations on good soil grow to 75 feet tall in 60 years.

290. Lopes Pimentel, António Augusto. 1942. Primeiras notas para o estudo de uma doença do castanheiro e nogueira observada nos viveiros florestais e causada por um ficomiceta. /A DISEASE OF CHESTNUT AND WALNUT TREES OBSERVED IN FOREST NURSERIES AND CAUSED BY A PHYCOMYCETE./ Serv. Florestais Port. Public. 9(2):175-187, illus. /English summary p. 185./
The disease is probably Phytophthora cambivora and may be transmitted on seeds.

291. Lopushanskii, P. I., and Molotkovskii, G. H. 1955. /POLARITY AND DISTRIBUTION OF ASCORBIC ACID IN WALNUT (JUGLANS REGIA) PLANTS./ Dokl. Akad. Nauk SSSR 103:723-726, illus. /In Russian/

Highest ascorbic acid content was found in the root collar and in the apex of young shoots.

292. Lopushanskii, P. I., and Molotkovskii, G. H. 1955. /THE RESPIRATION RATE OF METAMEROUS FORMATIONS IN JUGLANS NIGRA AND THE phenomenon of polarity./ Dokl. Akad. Nauk SSSR 100(6):1179-1182. /In Russian/
In all parts examined (shoot internodes, leaflets, peduncle, and pericarp) a gradient was found in the respiration rate, the basal portions always respiring more actively than the apical.

293. Lopushanskii, P. I., and Molotkovskii, G. H. 1956. /POLARITY AND DYNAMICS OF OIL AND VITAMIN C ACCUMULATION IN THE AERIAL PARTS OF THE WALNUT./ Bjul. Mosk. O-va Ispty. Prir., Otd. Biol. 61(1):61-67. /In Russian with French summary/
Oil content of nuts is higher on the southern side of the tree than on the northern, and increases with branch height; oil content is highest in the interior of the crown. Ascorbic acid content is lowest in nuts from the interior of the crown, highest on the north side.

294. Lotbiniere, Alain Joly de. 1920. THE WALNUT PLANTATIONS AT POINT PLATON. Canad. Forest. J. 16(7):325-329, illus.
Black walnut plantation in Quebec, with adequate wind protection, reached 55 feet in height and 7 inches in diameter in 37 years.

295. Lownsbery, B. F. 1956. PRATYLENCHUS VOLNUS, PRIMARY CAUSE OF THE ROOT LESION DISEASE OF WALNUTS. Phytopathology 46:376-379, illus.
This root-lesion nematode attacks Juglans hindsii causing stunting, dieback, and chlorosis.

296. Lownsbery, B. F. 1960. STIMULATION OF WALNUT BY SCHRADAN (OMPA) IS NOT THE RESULT OF ROOT LESION NEMATODE CONTROL. Plant Dis. Reporter 44:690-691.
The growth stimulation remains unexplained.

297. Lubbock, John. 1891. ON THE FRUIT AND SEED OF THE JUGLANDEAE: PTEROCARYA. Linn. J. Bot. (London) 28:247-254, illus.
Pterocarya and Juglans fruits are contrasted and phylogenetic relationships discussed.

298. Lugg, J. W. H., and Weller, R. A. 1943. VITAMIN C IN WALNUTS. Nature (London) 152 (3859):448.
Only about 4.5 to 6 percent of the 'total' ascorbic acid in ripe English walnut fruit is dehydroascorbic acid.

299. Lustig, Ernst. 1948. Aus der Praxis der forstlichen Zwischenkultur-wirtschaft. /FOREST INTERCROPPING./ Allg. Forst-u. Holzwirtschaft. Zeitung 59(17/18):137-139.
Presents cost estimates showing the relative economy of complete clearing of good sites, growing a rye-oats mixture in the forest openings for about 4 or 5 years, and then setting out walnut trees that have been grown in adjacent forest transplant beds for 3 or 4 years.

300. Lutz, J. F. 1958. COLOR IN WALNUT VENEER. Veneers and Plywood 52(11):15, 21-22, illus.
American walnut wood is darker than English walnut and also has a characteristic purple tinge. Heating American walnut veneer bolts before slicing causes the heartwood to become lighter and the sapwood darker. Color can also be regulated by stacking wet veneer for aging in a warm room for several hours before drying.

301. Lynn, Curtis, and Hartmann, H. T. 1957. ROOTING CUTTINGS UNDER MIST. Calif. Agr. 11 (5):11, 15.
Leafy softwood cuttings of the Paradox hybrid walnut (Juglans hindsii x J. regia) were successfully rooted in a mist bed. The best rooting percentage was obtained with a 5-second dip in 8000 p.p.m. indolebutyric acid for cuttings taken on July 14.

302. McBeth, C. W., Larson, J. E., and Ichikawa, S. T. 1963. 1,6-HEXANEDITHIOL DIACETATE AS A DIP NEMATOCIDE FOR BARE-ROOTED NURSERY STOCK. Plant Dis. Reporter 47:432-436.
But walnut can only tolerate 100 ppm (half recommended dosage) as a 24-hour dip.

303. McDaniel, J. C. 1957. THE POLLINATION OF JUGLANDACEAE VARIETIES--ILLINOIS OBSERVATIONS AND REVIEW OF EARLIER STUDIES. N. Nut Growers Ass. Annu. Rep. 47(1956):118-132.
Most black walnuts in Illinois are protogynous, while Carpathian varieties of Persian walnut tend to be protandrous. Several types of unusual monoecious flowering in walnut are described.

304. McDaniel, J. C. 1958. THE POLLINATION OF JUGLANDACEAE VARIETIES. N. Nut Growers Ass. Annu. Rep. 48:(1957):89-93.
Juglans trees are generally dichogamous, and climatic factors are responsible for considerable differences in flowering se-

quence of a variety in different locations.

305. McDaniel, J. C. 1959. POLLINATION OF THE JUGLANDACEAE: 1958 OBSERVATIONS ON VARIETIES AS TO FLOWER TYPES. N. Nut Growers Ass. Annu. Rep. 49(1958):64-68.
Notes on the time of flowering of a large number of Juglandaceae species and varieties.

306. McDaniel, J. C. 1959. SOME AIDS TO SUCCESSFUL SUMMER PROPAGATION OF TREES. N. Nut Growers Ass. Annu. Rep. 49(1958):35-38.
The use of fungicides like Ferbam and Zineb and use of polyethylene bags to protect the grafted buds from drying are recommended.

307. MacDaniels, L. H. 1933. NUT GROWING IN NEW YORK STATE. Cornell Univ. Agr. Exp. Sta. Bull. 573, 24 pp., illus.
Susceptibility of species and varieties to cold-temperature damage and propagation by budding and grafting are emphasized.

308. MacDaniels, L. H. 1953. SOME ASPECTS OF THE PROBLEMS OF CURLY-GRAINED WALNUT. N. Nut Growers Ass. Annu. Rep. 44:72-79, illus.
Discusses causes of the formation of curly grain and problems connected with the production of curly-grained walnut logs by grafting.

309. MacDaniels, L. H. 1955. WALNUT CATERPILLARS CAN BE CONTROLLED. N. Nut Growers Ass. Annu. Rep. 46:108-110, illus.
Walnut datana is the larval stage of a moth which can seriously defoliate walnuts. It can be controlled by spraying DDT or lead arsenate, or removing leaves with egg clusters or young larvae (before the final moult).

310. MacDaniels, L. H., and Muenscher, W. C. 1941. BLACK WALNUT TOXICITY. N. Nut Growers Ass. Annu. Rep. 31(1940):172-179, illus.
The authors present considerable evidence from the literature and their own experiments showing that walnuts are sometimes harmful to other plants growing nearby. They cannot explain this effect, but feel that a toxic substance may be produced that is quickly destroyed in the soil, perhaps by soil aeration. This quick disappearance of such toxic substance would account for the frequent reports denying walnut antagonism.

311. MacDaniels, L. H., and Welch, D. S. 1965. THE WALNUT BUNCH DISEASE PROBLEM. N. Nut Growers Ass. Annu. Rep. 55(1964):41-48, illus.
Reviews the literature on cause, hosts, range, and transmission of this presumably virus disease; discusses the appearance of symptoms in several Juglans species and in young and mature trees.

312. MacDougal, D. T. 1924. GROWTH IN TREES AND MASSIVE ORGANS OF PLANTS. DENDROGRAPHIC MEASUREMENTS. Carnegie Inst. Wash. Public. 350:1-88, illus.
A Juglans major tree grown near sea level in California from seed collected at 8,000 feet in Arizona retains its leaves about twice as long as native walnuts at the same locality in Arizona.

313. MacDougal, D. T. 1926. THE HYDROSTATIC SYSTEM OF TREES. Carnegie Inst. Wash. Public. 373, 125 pp., illus.
Gases in the central cylinder in Juglans major may include CO_2 at a partial pressure 600 times as great as in the atmosphere with O_2 about half that in the atmosphere. Exudation pressures occur in new wood, with a maximum at dawn and a minimum at mid-day; these pressures are not "root pressure."

314. MacDougal, D. T. 1930. LENGTHENED GROWTH PERIODS AND CONTINUOUS GROWTH. Amer. Phil. Soc. Proc. 69(6):329-345.
Juglans major, native to a region with short summers and severe winters, when transplanted to a milder climate grows actively 2 to 3 times as long as in its native habitat. Changes in morphogenesis are accompanied by variations in the nut.

315. MacDougal, D. T. 1936. STUDIES IN TREE GROWTH BY THE DENDROGRAPHIC METHOD. Carnegie Inst. Wash. Public. 462, 256 pp., illus.
Juglans major trees from two Arizona mountain provenances, one between 1,800 and 2,500 meters high and the other at about 1,000 meters, were grown near sea level in California. The high-elevation strain bore fruit beginning at age 10 and every year thereafter. Leaves develop before flowers in both the original habitat and the coastal location; however leaves emerge in late March in California versus May in Arizona. Radial growth of the young high-elevation tree in California usually began about mid-May and ended in mid-August (earlier in dry years). But at 25 years of age, this tree's growth habitat was becoming more like that of trees in its native habitat, with radial growth not commencing until June, after leaves have completely expanded. The low-elevation variety in its native habitat is characterized by simultaneous leaf and flower development, with flowers maturing before leaves have fully expanded. The tree studied in California did not bear fruit. Leaves on this tree emerged 2 to 4 weeks earlier than on the high-elevation tree. Activity of the cambium in

Juglans does not begin until leaf expansion is well advanced. In most years half of the final leaf area was exposed before radial growth began.

316. MacDougal, D. T., Overton, J. B., and Smith, Gilbert M. 1929. THE HYDROSTATIC-PNEUMATIC SYSTEM OF CERTAIN TREES: MOVEMENTS OF LIQUIDS AND GASES. Carnegie Inst. Wash. Public. 397, 99 pp., illus.

Development of heartwood from sapwood in Juglans californica includes blocking of all vessels by tyloses. Additionally, springwood portions of some annual rings of sapwood are also tylosed. Within annual rings that are partly or completely untylosed the transpiration stream moves through the outer portion of the late summerwood and the innermost portion of early springwood, leaving an intermediate zone through which there is no conduction.

317. McHargue, J. S., and Roy, W. R. 1932. MINERAL AND NITROGEN CONTENT OF THE LEAVES OF SOME FOREST TREES AT DIFFERENT TIMES IN THE GROWING SEASON. Bot. Gaz. 94:381-393.

Among 23 deciduous tree species growing on limestone soil in central Kentucky, Juglans nigra foliage was above average in iron, phosphorus, and potassium content and below average in manganese.

318. McKay, John W. 1957. WALNUT BLOSSOMING STUDIES IN 1956. N. Nut. Growers Ass. Annu. Rep. 47(1956):79-82, illus.

Juglans regia varieties bloomed about 2 weeks earlier than most J. nigra varieties, but two hybrids between the two species bloomed earlier and one hybrid later than any of the pure species varieties observed.

319. McKay, John W. 1962. ANTHRACNOSE RESISTANCE AND FOLIAGE VARIABILITY OF SECOND-GENERATION WALNUT SEEDLINGS. N. Nut Growers Ass. Annu. Rep. 52(1961):53-61, illus.

Seedlings grown from nuts produced by a natural Juglans regia x nigra hybrid (which was probably pollinated by J. regia) all tended to bear leaves with 9 to 15 leaflets, whereas J. regia leaves usually have 7 or 9 leaflets and J. nigra 15 to 23. The hybrid progenies varied considerably in defoliation caused by anthracnose infection, but were rather consistent within progeny lines. The author suggests that polygenic inheritance governs both leaflet number and anthracnose resistance.

320. McKay, John W., and Crane, Harley L. 1951. BUNCH DISEASE OF BLACK WALNUT. N. Nut Growers Ass. Annu. Rep. 41(1950):56-62.

Gives history and symptoms of this virus disease. Japanese walnuts are most susceptible, followed by butternut and English walnut. Black walnut is relatively resistant. Complete removal of diseased trees is the only control.

321. McKay, John W., and McKay, Hazel H. 1941. MICROSPOROGENESIS IN JUGLANS INTERMEDIA CARR. Amer. J. Bot. 28:4s. (Abstr.)

The staminate catkins of two trees of Juglans intermedia produce 75 percent abnormal pollen. The somatic chromosome number is 32, but meiosis is highly irregular and the trees are very infertile. The trees are presumed to be natural hybrids of two species of walnut that are genetically unlike, probably J. regia and J. nigra.

322. McMillen, J. M. 1951. THE PROBLEM: HOW CAN BLACK WALNUT GUNSTOCK BLANKS BE KILN DRIED WITHOUT HONEYCOMBING? Wood (Chicago) 52(12):49-50.

Hot-dip pitch-asphalt end-coating and a proper kiln-drying schedule are recommended.

323. Madsen, Harold F., Falcon, Louis A., and Wong, Tim T. Y. 1964. CONTROL OF THE WALNUT APHID AND CODLING MOTH ON WALNUTS IN NORTHERN CALIFORNIA. J. Econ. Entomol. 57 (6):950-952.

Phosphamidon and other compounds provided effective control against both pests.

324. Makarov, S. N. 1954. /SEX DIFFERENCES IN PLANTS AS REFLECTED IN VEGETATIVE AND BIOLOGICAL FEATURES./ Bjul. Gl. Bot. Sada 17:43-48. /In Russian/

Includes Juglans nigra.

325. Manning, Wayne E. /n.d./ JUGLANS L. Fieldiana 24:356-359.

Describes J. guatemalensis and J. steyermarkii, 2 new species from Guatemala.

326. Manning, Wayne E. 1938. THE MORPHOLOGY OF THE FLOWERS OF THE JUGLANDACEAE. I. THE INFLORESCENCE. Amer. J. Bot. 25:407-419, illus.

Emphasis on evolutionary development; Juglans and Carya are most advanced of 6 genera in the family.

327. Manning, Wayne E. 1940. THE MORPHOLOGY OF THE FLOWERS OF THE JUGLANDACEAE. II. THE PISTILLATE FLOWERS AND FRUIT. Amer. J. Bot. 27:839-852, illus.

Petals are absent throughout the family.

328. Manning, Wayne E. 1948. THE MORPHOLOGY OF THE FLOWERS OF THE JUGLANDACEAE. III. THE STAMINATE FLOWERS. Amer. J. Bot. 35:606-621, illus.

The typical 'floral envelope' in Juglans consists of a narrow primary bract, 2 bracteoles, and 4 or fewer sepals. A few species, especially from Central and South America, have a larger number of organs in the flowers.

329. Manning, Wayne E. 1957. THE GENUS JUGLANS IN MEXICO AND CENTRAL AMERICA. J. Arnold Arboretum 38(2):121-150, illus.
This taxonomic revision recognized 7 species plus 2 varieties. Central American J. olanchana probably gave rise to other Mexican and U. S. species in section Rhysocaryon (all those in N. America except J. cinerea).

330. Manning, Wayne E. 1960. THE GENUS JUGLANS IN SOUTH AMERICA AND THE WEST INDIES. Brittonia 12(1):1-26, illus.
A revision, with key, based on study of all the collections in the principal herbaria of the world. Six species are recognized (all of the section Rhysocaryon), including J. venezuelensis and J. soratensis spp. nov., the latter from Bolivia. A tabular comparison of the species and chief varieties of the section Rhysocaryon and a note on some apparent hybrids are also included.

331. Manning, Wayne E. 1962. BRANCHED PISTILLATE INFLORESCENCES IN JUGLANS AND CARYA. Amer. J. Bot. 49:975-977, illus.
Occasional branched inflorescences, making the pistillate flower essentially a small panicle, represent a primitive condition.

332. Marshall, R. P. 1953. A POSSIBLY UNREPORTED HOST OF POLYPORUS SQUAMOSUS. Sci. Tree Top. 2(1):12-13, illus.
P. squamosus, which commonly causes a white heart rot in elm, was collected from a pruning wound on Juglans nigra.

333. Marth, Paul C., and Mitchell, John W. 1961. GROWTH REGULATORS, STIMULANTS, AND SEEDS. IN: SEEDS. U.S. Dep. Agr. Yearbook 1961:51-56.
Juglans nigra trees growing in a green house were stimulated to grow 8.5 feet tall (vs. 1.5-foot control trees) by treatment with 1-percent gibberellic acid in lanolin paste. The paste was applied 3 times during the summer in narrow bands around the stem 1/2 inch below the terminal bud.

334. Martignoni, M. E., and Zemp, H. 1956. Ergebnisse aus einem Bekämpfungsversuch gegen die gemeine Napfschildlaus Eulacanium corni (Bouché) (Homoptera, Coccoidea, Lecanoidae) an Nussbäumen. /CONTROL TESTS AGAINST E. CORNI ON WALNUT./ Kurzmitt. Schweiz. Anst. Forstl. Versuchswesen 9, 11 pp., illus.
Tests in a heavily infested 11-year-old trial plantation with Winterspritzmittel Ciba, a combination of mineral oils and Fosfinon (the proprietary name for a phosphoric-acid ester containing Cl), sprayed in mid-March, gave excellent results in concentrations of 1 and 1.5 percent.

335. Massey, A. B. 1925. ANTAGONISM OF THE WALNUTS (JUGLANS NIGRA L. AND J. CINEREA L.) IN CERTAIN PLANT ASSOCIATIONS. Phytopathology 15:773-784, illus.
Alfalfa and tomato plants growing in direct contact with walnut roots wilted and died. Tomato plants grown in water culture containing pieces of walnut root bark were also killed.

336. Mateescu, N. 1959. Studiul infloritului şi legarii fructelor la nuc (Juglans regia L.). /FLOWERING AND FRUIT SETTING IN ENGLISH WALNUT./ Lucrări Sti. Inst. Cercet. Hort.-Vit., Băneasa-Bucureşti (1957):357-364, illus. /Russian and French summaries, p. 364./
In the Dîmbovitza valley, walnuts flower between April 14 and May 26 over a 14- to 25-day-long period. The local trees are dichogamous. Flowering begins when median temperature reaches 11° to 14° C; optimum is 11° C. Protogynous trees were more productive than androgynous trees.

337. Mattoon, Wilbur R., and Reed, C. A. 1924. BLACK WALNUT FOR TIMBER AND NUTS. U.S. Dep. Agr. Farmers' Bull. 1392, 30 pp., illus.
Guide to site requirements, uses, and methods of planting and growing walnuts on farms.

338. Mattoon, W. R., and Reed, C. A. 1932. PLANTING BLACK WALNUT. U.S. Dep. Agr. Leafl. 84, 8 pp., illus.
(Superseded by item No. 90.)

339. Maurer, K. J. 1950. Ein Beitrag zur Walnuss-Freilandveredlung. /OUTDOOR WALNUT BUDDING./ Schweiz. Z. Obst-u. Weinbau 59: 345-348, illus.
Patch budding in May and June with breaking buds or in July and August with dormant buds is 80- to 95-percent successful.

340. Maurer, K. J. 1950. Möglichkeiten der vegetativen Vermehrung der Walnuss. /VEGETATIVE PROPAGATION OF WALNUTS./ Schweiz. Z. Obst-u. Weinbau 59:136-137.
Shoots of 300 sorts of walnuts were layered but roots formed only if the shoots had been

previously wired. Still better results followed wiring and mounding earth around shoots in stool beds. Varietal differences in rooting capacity were noted.

341. Maurer, K. J. 1951. Die Walnuss-Freilandveredlung. /FIELD-GRAFTING WALNUTS./ Bayer. Landesverband Obst-u. Gartenbau, Munich, 30 pp., illus.

342. Maurer, K. J. 1952. Ein Beitrag zur Gewinnung bewurzelter Abrisse bei einigen Juglandsarten. /LAYERING OF JUGLANS SPECIES./ Schweiz. Z. Obst-u. Weinbau 61: 187-189, illus.

Highest percentage of shoots rooted in stool beds was obtained with J. sieboldiana, followed by J. mandshurica and J. cinerea. J. regia var. monophylla did not root satisfactorily.

343. Maurer, K. J. 1957. Die Problematik der Walnussveredlung in den Zonen des gemässigten Klimas. /WALNUT GRAFTING PROBLEMS IN REGIONS OF TEMPERATE CLIMATE./ Mitt. Klosterneuberg 7(6):326-331, illus. /English, French, Spanish summaries, p. 330./

Juglans nigra is preferred as a rootstock for J. regia, but J. regia, J. sieboldiana, and J. mandshurica are also used. Summer patch budding or winter greenhouse grafting are the recommended methods.

344. Maurer, K. J. 1960. Untersuchungen mit Juglans-nigra-Samlingen zur Unterlagenanzucht. /GROWING BLACK WALNUT SEEDLINGS FROM GRAFTING ROOTSTOCKS./ Mitt. Klosterneuberg 10B:121-124, illus. /English, French, Spanish summaries, p. 124./

Root pruning of J. nigra seedlings in mid-June stimulates lateral root growth for the balance of the season in the nursery. Seeding at depths of 3.2 and 4.8 inches resulted in larger seedlings than when seed was covered only 1.6 inches deep.

345. Melville, Ronald; Wokes, Frank; and Organ, John G. 1943. APPARENT VITAMIN C IN WALNUTS. Nature (London) 152(3859): 447-448.

Four species of walnuts were found to be a "remarkably rich source of vitamin C."

346. Merendi, A. 1956. Il noce nero, Juglans nigra L. Ital. Agr. 93(11):883-888, illus.

Silvicultural characters, and possibility of use in Italy.

347. Meza, N. 1963. Altoirea mucului cu ramură detasată. Grădina, Via Livada 12 (3):48-50, illus.

Veneer grafting.

348. Michev, B. 1954. Predposevna podgotovka na plodovete na obiknovenija orekh. /PREPARATION OF THE FRUITS OF JUGLANS REGIA BEFORE SOWING./ Gorsko Stopanstvo 10(3):119-123, illus.

/Not seen./

349. Michelbacher, A. E. 1945. CONTROL OF CODLING MOTH ON WALNUTS: PROGRESS REPORT. J. Econ. Entomol. 38(3):347-355, illus.

DDT appears to provide effective control. Bacterial blight injury apparently makes caterpillar entry into the nuts easier after the early part of the growing season.

350. Michelbacher, A. E. 1955. FURTHER OBSERVATIONS ON THE CONTROL OF THE WALNUT APHID. J. Econ. Entomol. 48(5):504-509.

Systemic insecticides, systox and schradan, controlled walnut aphid better than non-systemic insecticides. Unusually high summer temperatures and low soil moisture also cause high aphid mortality.

351. Michelbacher, A. E., and Bacon, O. G. 1952. WALNUT INSECT AND SPIDER-MITE CONTROL IN NORTHERN CALIFORNIA. J. Econ. Entomol. 45 (6):1020-1027, illus.

Recommendations for control of codling moth, walnut aphid, and spider mite.

352. Michelbacher, A. E., and Hitchcock, Stephen W. 1957. WALNUT APHID CONTROL. Calif. Agr. 11(5):10, 15.

Describes several satisfactory insecticides; OMPA was most effective, but not yet cleared for commercial use.

353. Michelbacher, A. E., and Hitchcock, Stephen W. 1958. WALNUT APHID INVESTIGATIONS IN NORTHERN CALIFORNIA. J. Econ. Entomol. 51:527-532.

Schradan is the most effective insecticide tested for use against the walnut aphid, Chromaphis juglandicola (Kltb.). The unusually high vigor of trees treated with schradan suggests a stimulating effect beyond that due to pest control.

354. Michelbacher, A. E., Middlekauf, W. W., and Davis, Donald. 1950. ENVIRONMENTAL RESISTANCE AS A FACTOR IN CODLING MOTH CONTROL ON WALNUTS. J. Econ. Entomol. 43(3):383.

Climatic and biotic factors that influence the size of the codling moth population fluctuate from year to year. When these factors combine to favor the moth, spray programs must be properly timed and thoroughly applied to control the insects.

355. Michelbacher, A. E., Middlekauf, W. W., and Wegenek, Edward. 1950. THE WALNUT APHID

IN NORTHERN CALIFORNIA. J. Econ. Entomol. 43(4):448-456, illus.

When abundant, the aphids injure trees by feeding on leaves; additionally, the aphids secrete large quantities of honeydew on which a sooty mold fungus grows. The fungus darkens the surface of leaves and nuts, causing them to be easily sunburned. Fourteen percent nicotine dry concentrate is recommended for control.

356. Michelbacher, A. E., and Ortega, J. C. 1958. A TECHNICAL STUDY OF INSECTS AND RELATED PESTS ATTACKING WALNUTS. Calif. Agr. Exp. Sta. Bull. 764, 87 pp., illus.

Describes development stages of important insect pests of English walnut in California, their life history, habits, damage, seasonal population trends, and cultural methods for insect control. Very little on insecticides.

357. Miller, Julian H., and Thompson, G. E. 1949. WITCHES'-BROOM OF JAPANESE WALNUT IN GEORGIA. Plant Dis. Reporter 33(12):455, illus.

J. sieboldiana is more susceptible than J. nigra.

358. Miller, P. W. 1931. A REPORT OF THE PROGRESS OF STUDIES ON THE LIFE HISTORY AND CONTROL OF WALNUT BLIGHT IN OREGON. Oregon State Hort. Soc. Annu. Rep. 22(1930):142-156.

359. Miller, P. W. 1932. SECOND REPORT OF PROGRESS OF STUDIES ON WALNUT BLIGHT AND ITS CONTROL IN OREGON. Oregon State Hort. Soc. Annu. Rep. 23(1931):123-135.

360. Miller, P. W. 1933. THIRD REPORT OF PROGRESS OF STUDIES ON WALNUT BLIGHT AND ITS CONTROL IN OREGON. Oregon State Hort. Soc. Annu. Rep. 24(1932):140-161.

361. Miller, P. W. 1934. FOURTH REPORT OF PROGRESS ON STUDIES ON WALNUT BLIGHT AND ITS CONTROL IN OREGON. Oregon State Hort. Soc. Annu. Rep. 25(1933):138-153.

362. Miller, P. W. 1935. STUDIES ON THE CONTROL OF WALNUT BLIGHT IN OREGON: FIFTH REPORT OF PROGRESS. Oregon State Hort. Soc. Annu. Rep. 26(1934):105-121.

363. Miller, P. W. 1937. SIXTH REPORT OF PROGRESS ON STUDIES OF WALNUT BLIGHT AND ITS CONTROL IN OREGON. Oregon State Hort. Soc. Annu. Rep. 27(1936):134-151.

Two or three sprays with Bordeaux 2-2-50 mixture provide effective blight control.

364. Miller, P. W. 1938. STUDIES ON WALNUT BLIGHT AND ITS CONTROL IN OREGON: SEVENTH REPORT OF PROGRESS. Oregon State Hort. Soc. Annu. Rep. 1937:119-143.

In further spraying tests against walnut blight (Bacterium juglandis) in Oregon in 1937, when the disease was moderately severe as a result of prolonged rains during the critical period of infection, almost as good control was given by Bordeaux mixture 2-2-50, 2-1-50, and 2-1/2-50, as by the 4-2-50 and 4-4-50 concentrations, though a concentration of 8-5-50 gave the best results. Foliage injury was generally reduced to an insignificant amount by the addition of fish or mineral oils or oil emulsions, and mixtures made with dolomitic or high-magnesium lime were less injurious than those made with high-calcium lime. Injury diminished with decreasing amounts of lime until the neutral point was reached. Preliminary studies indicated that Bordeaux mixture has less effect on the transpiration of walnut leaves than on that of some other plants. Copper oxalate (2-50) was at least as effective as Bordeaux mixture (2-1-50) and caused no perceptible foliage injury, while copper oxychloride (containing 40-percent metallic copper, and used at the rate of 2 in 50) was nearly as effective and also caused no leaf injury.

365. Miller, P. W. 1941. WALNUT BLIGHT CONTROL IN OREGON. Oregon State Coll. Ext. Circ. 359, 4 pp., illus.

Spraying three times with Bordeaux mixture is recommended.

366. Miller, P. W. 1960. RELATIVE RESISTANCE OF JUGLANS REGIA SEEDLINGS TO INFECTION BY VERTICILLIUM ALBO-ATRUM AS DETERMINED BY INOCULATIONS. Plant Dis. Reporter 44(12): 919.

In inoculation tests with V. albo-atrum none of 10 one-year-old seedlings of J. regia showed any evidence of infection.

367. Miller, P. W. 1963. THE HOW, AN APPARENTLY BLIGHT-RESISTANT PERSIAN WALNUT VARIETY. Plant Dis. Reporter 47:686-687.

The resistance to Xanthomonas juglandis is apparently not related to difference in time of leaf emergence.

368. Miller, P. W. 1964. JUGLANS REGIA IS APPARENTLY NOT SUSCEPTIBLE TO ELM AND CHERRY ISOLATES OF VERTICILLIUM ALBO-ATRUM. Plant Dis. Reporter 48(1):69.

Walnut seedlings inoculated with the fungus showed no visible vascular symptoms.

369. Miller, P. W., and Roth, L. F. 1956.

RELATIVE SUSCEPTIBILITY OF POTTED SEEDLINGS OF JUGLANS REGIA, J. HINDSII, AND PTEROCARYA STENOPTERA TO PHYTOPHTHORA CINNAMOMI. Plant Dis. Reporter 40(6):538-541, illus.

In greenhouse inoculation experiments J. regia and J. hindsii proved susceptible to infection by P. cinnamomi, whereas Pterocarya stenoptera was resistant.

370. Miller, P. W., Schuster, C. E., and Stephenson, R. E. 1945. DISEASES OF THE WALNUT IN THE PACIFIC NORTHWEST AND THEIR CONTROL. Oregon Agr. Exp. Sta. Bull. 435, 42 pp., illus.

Symptoms of and control for several diseases of Juglans regia as well as descriptions of and treatments for nutrient deficiencies and climatic damage.

371. Miller, P. W., and Thompson, B. G. 1937. BLIGHT AND INSECT PESTS OF WALNUTS. Oregon State Coll. Ext. Bull. 500, 14 pp., illus.

Description and control of walnut blight and several insect pests of Juglans regia.

372. Minckler, L. S. 1941. THE RIGHT TREE IN THE RIGHT PLACE. J. Forest. 39:685-688.

In planting black walnut in the Appalachian Valley and adjacent mountain regions, Minckler suggests that the following conditions should be met: Aspect--northerly slopes or well-drained bottoms with the A soil horizon over 7 inches in depth; topographic position--lower slopes, or well-drained bottoms and sinkholes; desirable soil condition--the A horizon friable, the upper half of the B horizon friable or plastic, not stiff; soil well aerated.

373. Misnik, G. E. 1963 /JUGLANS SPECIES IN THE "TROSTJANEC" ARBORETUM, AND THEIR FRUITING./ Bjul. Gl. Bot. Sada, Moskva 50: 49-52. /In Russian/

Notes on the fruiting (age of commencement, nut sizes, weights, and yields) of J. regia, J. sieboldiana, J. mandshurica, J. cinerea and J. nigra in the Chernigov region of the N. Ukraine.

374. Mitchell, H. L., and Wahlgren, H. E. 1959. NEW CHEMICAL TREATMENT CURBS SHRINK AND SWELL OF WALNUT GUNSTOCKS. Forest. Prod. J. 9(12):437-441, illus.

Thirty-nine-day soaking in polyethylene glycol solution increases dimensional stability of treated gunstocks and practically eliminates splits, checks, and internal honeycomb during seasoning. Gunstock blanks are best treated while still green; they can then be dried at an accelerated rate.

375. Molotkovskii, G. H. 1955. /THE GERMINATIVE ENERGY AND CAPACITY OF SEEDS OF QUERCUS RUBRA AND JUGLANS REGIA AS RELATED TO THEIR POSITION IN THE SOIL./ Dokl. Akad. Nauk SSSR 102(3):637-639. /In Russian/

Seedling vigor is increased by planting the seed upside down.

376. Molotkovskii, G. H., Lopushanskii, P. I., and Golubyev, V. O. 1955. /THE FORMATION AND DISTRIBUTION OF ASCORBIC ACID IN JUGLANS REGIA AS RELATED TO POLARITY./ Bot. Zh., Kiev 12(4):3-12. /In Ukrainian/

The contents of ascorbic acid in the various organs of seedlings and adult trees were determined throughout a growing season. The acid distribution in opposite parts of vegetative and reproductive organs was not uniform but polar.

377. Molotkovskii, G. H., and Molotkovskii, Ju. G. 1955. /THE DISTRIBUTION OF ASCORBIC ACID IN THE AXIAL ORGANS OF NORMALLY AND HORIZONTALLY GROWING PLANTS OF MILKWEED AND WALNUT./ Dokl. Akad. Nauk SSSR 103:921-924, illus. /In Russian/

Vitamin C distribution was the same in Juglans regia stems grown horizontally as in those grown vertically.

378. Molotkovskii, G. Kh., and Soldatova, M.A. 1959. /POLARITY AND SOME CHANGES IN THE PHYSIOLOGICAL AND BIOCHEMICAL PROCESSES OCCURRING DURING DORMANCY OF APPLE, PEAR, AND WALNUT TREES./ Pratsi Ekspeditsii Chernivets. Derzh. Univ. po Kompleksnomu Virchen. Karpat i Prikarpattya, Ser. Biol. Nauk 6:134-141. /In Russian./

During winter dormancy, concentration of solid substances, catalase, and peroxidase increases basipetally in tree stems, and water content increases to the upper part of stem and branches. Solid content is higher at the base of each internode than at the top. A similar distribution is found in the roots, with water content increasing and dry matter, catalase, and peroxidase increasing along a gradient from the base of the tree to the root tips.

379. Muenscher, W. C., and Brown, Babette I. 1943. A KEY TO SOME SEEDLINGS OF WALNUTS. N. Nut Growers Ass. Annu. Rep. 34:62-63.

Distinguishes 10 species on the basis of appearance at 1 to 3 months of age.

380. Muenscher, W. C., and Brown, Babette I. 1943. STORAGE AND GERMINATION OF NUTS OF SEVERAL SPECIES OF JUGLANS. N. Nut Growers Ass. Annu. Rep. 34:61-62.

Ten species of walnuts husked soon after harvest and stored in moist peat at 1 to 3° for 5 to 6 months all germinated satisfactorily.

381. Mühlenberg, Heinrich Ernst. 1801. Kurze Bemerkungen über die in der gegend von Lancaster in Nordamerika wachsenden Arten der Gattungen Juglans, Fraxinus und Quercus... mit Anmerkungen von C. L. Willdenow. /OBSERVATIONS ON JUGLANS, FRAXINUS, AND QUERCUS NEAR LANCASTER, NORTH AMERICA WITH REMARKS BY C. L. WILLDENOW./ Neue Schr. Ges. Natur. Freunde Berlin 3:387-402.
Translation in König C. D. E. Tracts Relative to Botany Translated from Different Languages. London, 1805. /Not seen./

382. Nagel, Karl. 1914. Studien über die Familie der Juglandaceen. Engler's Bot. Jahrbücher 50(5):459-530, illus.
Compares morphology, distribution, taxonomic and geologic history, and ecology of Platycarya, Engelhardtia, Pterocarya, Juglans, and Carya.

383. Nakaoki, Tashichiro, and Morita, Naokata. 1958. /STUDIES ON THE MEDICINAL RESOURCES. X. COMPONENT OF THE LEAVES OF JUGLANS REGIA L. VAR. SINENSIS C./ DC. Jap. Pharm. Soc. 78(5):521-522. /In Japanese, English summary/
One component of fresh leaves is juglanin, kaempferol 3-arabinoside.

384. Nast, Charlotte G. 1935. MORPHOLOGICAL DEVELOPMENT OF THE FRUIT OF JUGLANS REGIA. Hilgardia 9(7):345-362, illus.
Fertilization follows pollination in 2 to 5 days. The embryo is the "meat" of the nut with each cotyledon consisting of two lobes divided by the major septum so that half a cotyledon lies in each carpel. The greater part of the husk of the matured fruit is the involucre, with a thin inner layer being the perianth. The shell is the greater part of the ovary wall.

385. Nast, Charlotte G. 1940. THE DEVELOPMENT OF THE COTYLEDONS IN JUGLANS REGIA L. Amer. J. Bot. 27:7s. (Abstr.)
Cotyledons first become evident in embryos about 0.2 mm. long, or about 15 to 20 days after the first zygotic divisions. The further development of the cotyledons is described.

386. Nast, Charlotte G. 1941. THE EMBRYOGENY AND SEEDLING MORPHOLOGY OF JUGLANS REGIA L. Lilloa 6:163-205, illus. /Spanish summary/
Sequence of development in J. regia from zygote through the 1-year seedling. Plates of 51 photomicrographs.

387. Nawaschin, S. 1895. Ein neues Beispiel der Chalazogamie. /A NEW EXAMPLE OF CHALAZOGAMY./ Bot. Centralbl. 63(12):353-357.
In Juglans regia.

388. Nawaschin, S. 1909. Über das selbständige Bewegungsvermögen der Spermakerne beu einigen Angiospermem. /THE INDEPENDENT CAPACITY FOR STIMULATION OF SPERM NUCLEI OF SOME ANGIOSPERMS./ Österr. Bot. Z. 59(12): 457-467, illus.
A cytological study of double fertilization including observations on Juglans regia and J. nigra.

389. Nawaschin, S., and Finn, U. 1913. Zur Entwicklungsgeschichte der Chalazogamen. Mem. Akad. Nauk SSSR 31 (9):1-59. /Not seen./

390. Nebel, B. R. 1932. CYTOLOGICAL ASPECTS OF BREEDING NUTS. N. Nut Growers Ass. Annu. Rep. 22(1931):22-24.
Gives diploid chromosome number of 34 for Juglans californica, J. nigra, J. regia, and a J. nigra x regia hybrid.

391. Nedev, N. 1963. Untersuchungen über die Veredlung des Walnussbaums. /GRAFTING WALNUT TREES./ Mitt. Insts. f. Obstbau Kostinbrod 4:133-154, illus.
For several Juglans species, best results followed patch budding on J. regia stock between mid-August and early September. Mounding sand over the bud through the winter was also helpful.

392. Neel, L. R. 1939. THE EFFECT OF SHADE ON PASTURE. Tenn. Agr. Exp. Sta. Circ. 65, 2 pp., illus.
Over a 6-year period, steers that grazed on a mixed grass pasture shaded by 6- to 13-year-old walnut trees spaced 25 feet apart gained 21-25 percent more weight than steers grazed on unshaded pasture.

393. Neilson, J. A. 1935. THE RELATION OF GEOGRAPHIC STRAIN TO HARDINESS IN THE ENGLISH WALNUT. Mich. Agr. Exp. Sta. Quart. Bull. 18:15-22. /Not seen/

394. Nekrasova, V. L. 1928. /THE GENUS JUGLANS L. IN TURKESTAN./ Bul. Appl. Bot., Genet., Plant Breed. 18(2):304-360, illus. /In Russian, English summary p. 360./
Surveys seven species of section Dioscaryon, found generally between 20° and 50° north latitude in the eastern hemisphere. Recommends complete protection of the dwindling native walnuts of Turkestan.

395. Newcomer, Earl H. 1955. THE EFFECT OF HIGH FREQUENCY SOUND WAVES UPON THE GROWTH OF WALNUT TREES. N. Nut Growers Ass. Annu.

Rep. 46:47-48.
Ultrasonic waves caused temporary dwarfing or dauermodification of walnut seedlings which had their buds exposed. Contortion and curling of leaves ceased after 1 year, and after 7 years growth rate increased to approach the normal rate.

396. Ney, K. E. 1915. Die Nachzucht des Walnussholzes im deutschen Walde. /CULTURE OF WALNUT IN GERMAN FORESTS./ Mitt. Deut. Dendrol. Ges. 24:45-48.
Describes appropriate soil and microclimatic situations, and culture in stands and as single trees.

397. Nicoloff, Th. 1905. Sur le type floral et le développement du fruit des Juglandées. /FLOWER TYPE AND FRUIT DEVELOPMENT IN THE JUGLANDACEAE./ J. Bot. 19(6):69-84, illus. /Not seen./

398. Oboussier, Jean. 1929. Contribution à l'étude du Juglans cinerea. Bosc Frères et Rion, Lyon, 95 pp., illus.
Recommends J. cinerea as grafting stock for J. regia. Gives instructions for extracting juglone for use as a cathartic.

399. Olenyuk, N. A. 1952. /THE INTRODUCTION OF JUGLANS REGIA INTO FOREST PLANTATIONS./ Les. Khoz. 5(4):30. /In Russian/

400. Ota, Shigenori. 1937. A FORM OF JUGLANS SIEBOLDIANA VAR. CORDIFORMIS MAKINE. J. Jap. Bot. 13:43-45, illus. /In Japanese/

401. Ozol, A. M. 1949. /WINTER-HARDINESS OF JUGLANS REGIA AND OTHER SPECIES OF WALNUT./ Dokl. Akad. Nauk SSSR 66(4):725-728. /In Russian/
In the Moscow region winter-hardiness decreases in the order J. mandshurica and J. cinerea, J. nigra and J. cordiformis, J. regia. The last also shows wide variation in winter-hardiness.

402. Ozol, A. M. 1950. /OSMOTIC PRESSURE IN THE LEAVES AND ONE-YEAR-OLD SHOOTS OF SPECIES OF JUGLANS./ Dokl. Akad. Nauk SSSR 74:623-626. /In Russian./
A positive relation was found between osmotic pressure of plant sap and winter-hardiness in J. mandshurica, J. cinerea, J. nigra, and 3 varieties of J. regia. The level of osmotic pressure corresponds to the refractive index of the sap.

403. Ozol, A. M. 1950. /COLD RESISTANCE AND SOME OTHER ECOLOGICAL AND PHYSIOLOGICAL PROPERTIES OF SPECIES OF JUGLANS GENUS./ Tr. Inst. Les. 2:142-168, illus. /In Russian/ /Not seen/

404. Ozol, A. M. 1951. /CHOICE OF ORIGINAL SEED AND METHODS OF RAISING YOUNG SEEDLINGS (IN ACCLIMATIZATION EXPERIMENTS WITH JUGLANS REGIA)./ Tr. Inst. Les. 8:115-124, illus. /In Russian/ /Not seen./

405. Ozol, A. M. 1953. /DIRECTED 'RECONSTRUCTION' AND ADAPTATION OF WOODY PLANTS OF SOUTHERN ORIGIN UNDER THE INFLUENCE OF CHANGED CONDITIONS OF LIFE./ Akad. Nauk SSSR:198-216, illus. /In Russian/ /Not seen./

406. Ozol, A. M. 1962. /USING HYBRIDIZATION TO OBTAIN HETEROTIC FORMS OF WOODY PLANTS./ Latv. PSR Zinat. Akad. Vestis, Riga 8:75-80, illus. /In Russian/
Juglans mandshurica x regia hybrids in Latvia are vigorous, early-fruiting and winter-hardy.

407. Ozol, A. M., and Lazareva, A. A. 1953. /THE STATE OF WALNUT SHOOT-TISSUE CELLS DURING WINTER DORMANCY AND THEIR WINTER HARDINESS./ Dokl. Akad. Nauk SSSR 89(6): 1111-1114, illus. /In Russian/ English translation 1964, OTS 63-11009.
For a number of Juglans progenies, protoplasmic differentiation, onset of convex plasmolysis, peri-plastic lipoid layers, and starch-sugar conversion were all related to winter hardiness.

408. Ozol, A. M., and Peterson, E. 1964. /ADAPTIVE CHANGES IN ECOLOGICAL AND PHYSIOLOGICAL CHARACTERS OF TREES AND SHRUBS INTRODUCED INTO SOVIET LATVIA./ Latv. PSR Akad. Vestis (5):85-91. /In Russian/
Juglans sieboldiana from Tokyo acquired greater earliness and improved winter hardiness; the changes are heritable.

409. Ozol, A. M., and Zarubin, A. F. 1952. /THE INFLUENCE OF ENVIRONMENT UPON HYBRID WALNUT SEEDLINGS./ Dokl. Akad. Nauk SSSR 87 (2):287-290, illus. /In Russian/
Development of hybrids among Juglans regia, J. cinerea, J. nigra, and J. sieboldiana was strongly modified by growing in two quite different climates.

410. Ozols, A. 1957. /INTRODUCTION AND ACCLIMATIZATION OF NUT TREES IN LATVIAN SSR./ Akad. Zinat. Latv., Biol. Zinat. Lauks, u. Mežs. 3:57-58. /In Latvian/
Considers 5 Juglans species.

411. Ozols, A., and Lazareva, A. 1954. /DIRECTED CHANGES IN THE MODES OF PHOTOSYNTHESIS AND RESPIRATION IN ACCLIMATIZATION OF THE WALNUT./ Latv. PSR Zinat. Akad. Vestis 8:27-38. /In Russian/

412. Paglietta, Roberto. 1964. Tecnica della propagazione del Noce in Oregon (U.S.A.) mediante l'innesto a spacco laterale. /TECHNIQUE OF WALNUT PROPAGATION IN OREGON BY SIDE GRAFTING./ Colt. e G. Vinic. Ital 110(11):382-386, illus.
Describes a side cleft graft used with Juglans regia.

413. Pammel, L. H., and King, C. M. 1918. THE GERMINATION OF SOME TREES AND SHRUBS AND THEIR JUVENILE FORMS. Iowa Acad. Sci. Proc. 25:291-340, illus.
The first 3 or 4 leaves following germination of J. nigra are often simple and, in J. cinerea, scalelike; subsequent leaves are all compound.

414. Parmentier, P. 1911. Recherches anatomiques et taxonomiques sur les Juglandacées. Rev. Gén. Bot. 23:341-363.
/Not seen/

415. Passavalli, L. Puecher. 1932. Le principali malattie degli aceri, dei frassini e dei noci. /PRINCIPAL PESTS OF MAPLE, ASH AND WALNUT./ L'Alpe 19:162-168, illus.
Fungi and insects attacking J. regia in Italy.

416. Paul, B. H. 1963. THE APPLICATION OF SILVICULTURE IN CONTROLLING THE SPECIFIC GRAVITY OF WOOD. U. S. Dep. Agr. Tech. Bull. 1288, 97 pp., illus.
Black walnut is semi-ring porous. Wood of open-grown trees was somewhat heavier than that of forest-grown trees corresponding with a more rapid diameter growth of the former. Sapwood has a lower specific gravity than heartwood in both open- and forest-grown trees. Two reasons are suggested: retarded growth in recent years, and presence of infiltrated materials in the heartwood. No significant shrinkage differences were found between specimens of open- and forest-grown black walnut. As a rule, sapwood shrinkage is somewhat greater than that of adjacent heartwood.

417. Paxton, J. 1963. PATHOLOGICAL ANATOMY OF WALNUT BRANCHES INFECTED BY HENDERSONULA TORULOIDEA. Phytopathology 53(10):1141. (Abstr.)
Germinating conidia cannot penetrate uninjured periderm. Inside the periderm hyphae pass inter- and intracellularly (commonly through pits) through cortical and phloem cells, causing little initial reaction, but later the penetrated cell walls show signs of dissolution, possibly through the enzymes, cellulase, xylanase, pectinase, and amylase produced by the fungus.

418. Paxton, Jack D., and Wilson, E. E. 1965. ANATOMICAL AND PHYSIOLOGICAL ASPECTS OF BRANCH WILT DISEASE OF PERSIAN WALNUT. Phytopathology 55(1):21-26, illus.
Hendersonula toruloidea arthrospores germinated poorly on uninjured Juglans nigra branches, and spores that did germinate did not penetrate the uninjured periderm. Where periderm was broken and moisture and temperature high, germ tubes grew directly through or between cell walls, eventually causing plugging of xylem vessels by gums and tyloses. At concentrations occurring in walnut bark, hydrojuglone glucoside inhibited germination and growth of H. toruloidea spores in a basal medium.

419. Pazarincevic, Jevrosima K., and Damanster, Aleksandar F. 1962. /CHEMICAL EVOLUTION OF NON-NITROGENOUS SUBSTANCES IN THE NUTS OF JUGLANS REGIA L. DURING GROWTH AND SENESCENCE./ Bul. Soc. Chim. Beograd 27:23-25. /In Serbian with French summary, pp. 34-35/
In initial stages of growth, strong reducing substances and enediol compounds were present, but they decreased with an increase in cellulose and pentosans content, which reached a maximum when the fruit became heaviest and largest. Maximum ascorbic acid content was correlated with maximum water content.

420. Pechnikova, S. 1938. K vopruzu o vnutrividovoĭ izmonchivosti orakhov Juglans manshurica Max. Vestn. Dal'nov Fil. Akad. Nauk SSR 32:77-98, illus. /In Russian/
Variability in Juglans mandshurica.

421. Perry, George S. 1932. SOME TREE ANTAGONISMS. Penn. Acad. Sci. Proc. 6:136-141.
The author feels that black walnut is toxic to white pine in mixed plantations.

422. Pierce, Newton B. 1913. A NEW WALNUT. Science (n.s.) 37(955):613-614.
Describes Juglans quercifolia as new species arising as a hybrid of J. californica and probably an evergreen oak.

423. Pillow, Maxon Y. 1955. DETECTION OF FIGURED WOOD IN STANDING TREES. U.S. Forest Serv. Forest Prod. Lab. Rep. 2034, 3 pp., illus.
Removing outer bark of black walnut trees with a drawshave reveals grain patterns in

the soft inner bark that closely correspond to the wood beneath.

424. Plass, W. T. 1952. DIRECT SEEDING TESTS ON OLD FIELDS IN SOUTHEASTERN OHIO. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 71, 2 pp.
The method of ground preparation had little effect on the success of direct seeding. Of the eight species tested, only black walnut and red oak showed promise.

425. Podoljskaya, O. I. 1949. /SEED TREATMENTS FOR INCREASING FIELD GERMINATION OF SEED AND RATE OF GROWTH OF THE RESULTING SEEDLINGS./ Dokl. Akad. Nauk SSSR 67(3): 573-575. /In Russian/
Describes experiments with various chemical soaking treatments and recommends for Juglans regia: $MgCl_2$(30g./litre; 12 hr.), KNO_3 (10g/litre; 12-24 hr.) or $KMnO_4$ (0.01g./litre; 12 hr.).

426. Pokorny, J. 1952. /WALNUTS./ Les. Knihovna (mala Rada) 18, 85 pp., illus. /In Czech./
/Not seen/

427. Polishchuk, L. K. 1958. SEASONAL CHANGES IN PEROXIDASE ACTIVITY OF THE ABOVE-GROUND PARTS OF THE WALNUT TREE. Visnik Kiev. Univ. 1, Ser. Biol. (2):55-61. /In Ukrainian?/
Highest peroxidase activity was found in the leaves, lower in the bark, and lowest in the wood. One-year-old trees had higher activity than 2-year-old trees. Activity in the leaves was highest during growth, gradually declined, and then increased in early autumn.

428. Polishchuk. L. K., Senkevych, P. K., and Kel'nyk, M. P. 1959. /CHLOROPLASTS IN THE BARK OF THE WALNUT DURING THE WINTER AND SPRING./ Ukr. Bot. Zh. 16(3):32-41. /In Ukrainian; Russian and English summaries/
In Kiev, chloroplasts are agglutinated during the winter in the bark of 1- to 3-year-old branches of mature Juglans regia, J. cinerea, and J. nigra. In the spring these masses of chloroplasts are broken up into smaller units with a simultaneous decrease in the amount of chlorophyll. New chloroplasts are formed in May.

429. Pontis, Rafael E. 1941. El "Mal de la Tinta" del nogal en la Republica Argentina. /CROWN ROT OF WALNUT IN ARGENTINA./ Rev. Argentina Agron. 8(4):317-325, illus.
A destructive disease affecting trunk, crown, and roots of Juglans regia in Argentina is apparently caused by Phytophthora citrophthora.

430. Pontis Videla, Rafael E. 1943. El "mal de la tinta" del nogal en la Republica Argentina. /CROWN ROT OF WALNUT IN ARGENTINA./ Rev. Mens. B.A.P.27:31, 33, illus.
The disease is caused by a Phytophthora and can be easily controlled in its early stages by use of a fungicide.

431. Potter, Walter C. 1936. WALNUT--THE VARIETIES AND THEIR CHARACTERISTICS. Wood 1(7):332-336, illus.
Color and figure of Juglans regia typical in various areas of Europe and the Near East. Uses of J. regia and J. nigra timber.

432. Prillieux, Ed., and Delacroix, G. 1898. Les maladies des noyers en France. Min. Agr. Bull. 1387-1400.
Climatic and fungal damage and treatments.

433. Pringle, C. G. 1879. DIMORPHO-DICHOGAMY IN JUGLANS CINEREA L. Bot. Gaz. 4(12):237.
Male and female flowers mature about 10 days apart, regardless of their order of development.

434. Prutenskii, D. I., and Nikitinskii, Ju. I. 1962. /THE TYPES OF JUGLANS REGIA FORESTS IN SOUTHERN KIRGHIZIA./ Izd. Akad. Nauk Kirg. SSR, Frunze, 130 pp., illus.

435. Purcelean, S. 1956. Influenţa marimii seminţelor si a adincimii de semanare asupra cresţerii puieţilor de nuc negru (Juglans nigra L.). /THE INFLUENCE OF SIZE OF SEED AND DEPTH OF SOWING ON THE DEVELOPMENT OF J. NIGRA SEEDLINGS./ Rev. Padurilor 12:812-814.
At each of 3 depths (4, 8, and 12 cm.) 100 nuts of each of 3 sizes (small, medium, and large) were sown. Best germination was obtained at 8 cm., and the largest and most vigorous plants grew from the large nuts.

436. Pyke, Magnus; Melville, Ronald; and Sarson, Henry. 1942. VITAMIN C IN WALNUTS. Nature (London) 150(3800):267-268.
Juglans regia contained the most vitamin C of any walnut species examined--as much as 1800 mgm. per 100 gm. of unripe fruit. Nonetheless, 5 other Juglans species contained from 410 to 860 mgm. vitamin C per 100 gm.

437. Rahman, Khan A., and Khan, Abdul Wahid. 1942. A STUDY OF THE LIFE-HISTORY AND CONTROL OF BATOCERA HORSFIELDI HOPE (LAMIIDAE: COLEOPTERA)--A BORER PEST OF WALNUT TREE IN THE PUNJAB. Indian Acad. Sci. Proc. B15(4): 202-205, illus.

Larvae bore holes up to 1 inch in diameter and as deep as 4 to 5 inches into the stem.

438. Rannert, H., and Minelli, H. 1960. Gedeihen und Wuchsleistung einiger Versuchsbestände mit fremdländischen Holzarten im Burgenland. II. Teil: Roteiche und Schwarznuss. /GROWTH OF SOME TRIAL PLANTINGS OF EXOTICS IN THE BURGENLAND. II. QUERCUS RUBRA AND JUGLANS NIGRA./ Allg. Forstzeitung. 71(23/24):266-268, illus.
Includes some yield data on a J. nigra stand aged 32 years which showed little or no injury of any kind.

439. Rebmann. 1903. Erfahrungen über Gedeihen ausländischer Holzarten insbesondere über die Anzucht von Juglans nigra. /PRACTICAL EXPERIENCE WITH THRIFTY EXOTIC SPECIES, ESPECIALLY ON CULTIVATION OF J. NIGRA./ Allg. Forst-und Jagdzeitung 79:215-220.
/Not seen./

440. Rebmann. 1907. Juglans regia and Juglans nigra. Mitt. Deut. Dendrol. Ges. 16:187-209.
Silvics and nursery and plantation culture, including a summary of performance in 41 plantations (mostly in Germany) from 30 to 120 years old. (See also item 149.)

441. Rebmann. 1909. Behandlung von Schwarznüssen. Mitt. Deutsch. Dendrol. Ges. 18: 302-304, illus.
For Juglans nigra, recommends prompt hulling and cool dry storage for several days, followed by overwinter stratification in sand pits. Seed should be sown in the spring in a horizontal position, not with the point down.

442. Rebmann. 1912. Neuere Erfahrungen über die Anzucht einiger Juglandeen. Allg. Forst- und Jagdzeitung 88:257-264, illus.
Reviewed in Forestry Quarterly 12:102-105 (1913). To avoid transplant shock, Rebmann recommends direct seeding, using just-sprouted seed. With cultivation the trees average 11 feet tall in 5 years, 35 feet in 18 years. Because of slow healing, he recommends pruning only small branches.

443. Rebmann, 1912. Weitere Erfahrungen über die Anzucht von Juglandaceen. Mitt. Deut. Dendrol. Ges. 12:68-70, illus.
Plantation spacing and the need for corrective pruning following late frost damage to seedlings.

444. Rebmann. 1917. Absterbende Schwarznussbäume. /DYING WALNUT TREES./ Forst-und Jagdzeitung 93:217-227, illus.
Decline perhaps due to poorly drained soil in lowland plantations.

445. Rebmann. 1917 Absterbende Schwarznüsse. /DYING WALNUTS./ Mitt. Deut. Dendrol. Ges. 26:109-114, illus.
Less detail than preceding paper.

446. Reed, C. A. 1926. NUT-TREE PROPAGATION. U.S. Dep. Agr. Farmers' Bul. 1501, 46 pp., illus.
Process of grafting walnut trees to get desirable planting stock.

447. Reed, C. A. 1937. NATURAL WALNUT HYBRIDS IN THE EAST. N. Nut Growers Ass. Annu. Rep. 27(1936):30-40.
Describes natural and artificial walnut hybrids including Juglans regia x J. nigra, J. regia x J. cinerea, J. sieboldiana x J. regia, J. sieboldiana x J. cinerea, and J. nigra x J. regia.

448. Rehder, Alfred. 1928. ABNORMAL FRUITS OF JUGLANS NIGRA. J. Arnold Arboretum 9: 27-29, illus.
The outer husk only partly covers the fruit, but the parent tree is not a hybrid. Neither is pollination by nearby hickory trees the cause of the abnormality.

449. Richards, W. R. 1960. A NEW SPECIES OF MONIELLA OESTLUND, WITH A SYNOPSIS OF THE APHIDS ATTACKING HICKORY AND WALNUT IN CANADA. Canad. Entomol. 92(3):221-230, illus.
Describes 6 aphid species attacking hickory and walnut in Canada, and gives a key. A new species, Moniella microsetosa, is included.

450. Riegel, Joseph S. 1957. GROWING BLACK WALNUT FOR VENEER AND SAWLOGS. N. Nut Growers Ass. Annu. Rep. 48:73-76.
Recommends 24' x 24' spacing. Discusses problems with green measuring worms and some type of chewing insects before canopy closure.

451. Robbins, P. W. 1928. WALNUT INTERPLANTED WITH CEDAR GROWS RAPIDLY. Mich. Agr. Exp. Sta. Quart. Bull. 10(4):161-163.
Slow-growing white-cedar did not compete seriously with black walnut. Recommends walnut spaced 12 x 12 feet, surrounded by cedar to be removed in early thinning.

452. Robyns, W. 1938. Sur un cas de polyembryonie dans le Juglans nigra L. Annu. Soc. Sci. Bruxelles 58:120-129.
/Not seen/

453. Robyns, W. 1942. Sur un nouveau cas de polyembryonie dans le Juglans nigra. L. Soc.

Roy. Bot. Belg. Bull. 74:167-173, illus. /Not seen/

454. Rogers, N. F. 1949. THE GROWTH AND DEVELOPMENT OF BLACK WALNUT (JUGLANS NIGRA L.) ON COAL STRIP-MINED LAND IN SOUTHEAST KANSAS. Kan. Acad. Sci. Trans. 52(1):99-104, illus.

Reports on the establishment of about 2,000 acres of plantations on wholly or partially levelled spoil banks, about 13 years previously, using seed of native bottomland walnut. The trees grew satisfactorily and produced seed after 8 years.

455. Roig y Mesa, Juan Tomas. 1914. THE CUBAN WALNUT (JUGLANS INSULARIS GRISEB.) Modern Cuba 2(8):38-42, illus. /In English and Spanish.
/Not seen/

456. Rosseels, Eg. 1934. Le noyer noir. /THE BLACK WALNUT./ Bull. Soc. Cent. For. Belg. 37:18-27, illus.

History of introduction of J. nigra into Belgium, silvics, nursery practice, plantation establishment, and care.

457. Rovskii, V. M. 1951. /SELECTION AND BREEDING OF TREE SPECIES IN UZBEKISTAN./ Tr. Inst. Les. 8:132-151. /In Russian/

A preliminary report on work in progress at the Central Asian Forest Research Institute on the selection and hybridization of walnuts, elms, and poplars.

458. Rovskii, V. M. 1964. /INHERITANCE OF CHARACTERS IN WALNUT FOLLOWING OPEN POLLINATION./ Les. Khoz. 12:14-18. /In Russian/

Studies of nine varieties and their ungrafted seedlings showed that in each case the progeny differed from the mother tree and differed among themselves in phenological and morphological features, including nut characters. Protandry and protogyny could be observed within the same family.

459. Rowlee, W. W., and Hastings, George T. 1898. THE SEEDS AND SEEDLINGS OF SOME AMENTIFERAE. Bot. Gaz. 26:349-353, illus.

Seed of Juglans nigra and J. cinerea would not germinate in the greenhouse without stratification. The deeply two-lobed cotyledons do not emerge above the soil during germination nor do they appreciably decrease in size. The large seedling tap roots and leaves with successively greater numbers of leaflets are described.

460. Roy, H. 1936. Le pourridié sur les noyers de l'Isère. /WALNUT DECAY IN ISÈRE./ J. Agr. Paris (N.S.) 23:467-470, illus.

Armillaria mellea as one of the causes of death to walnuts.

461. Rudolph, B. A. 1933. BACTERIOSIS (BLIGHT) OF THE ENGLISH WALNUT IN CALIFORNIA AND ITS CONTROL. Calif. Agr. Exp. Sta. Bull. 564, 88 pp., illus.

A description of Phytomonas juglandis and its control with Bordeaux spray.

462. Rudolph, B. A. 1946. ATTEMPTS TO CONTROL BACTERIAL BLIGHTS OF PEAR AND WALNUT WITH PENICILLIN. Phytopathology 36(9): 717-725.

The antibiotic proved to be both bacteriostatic and bactericidal in vitro, but in vivo treatment by stem injection was not effective, presumably because the drug was diluted in the sapstream.

463. Rudolph, V. J., and Robbins, P. W. 1956. GROWTH OF PLANTED BLACK WALNUT ON THE MICHIGAN STATE UNIVERSITY CAMPUS. Mich. Agr. Exp. Sta. Quart. Bul. 38(4):520-523.

A 0.9-acre plantation of Juglans nigra planted in 1910 and thinned 3 times contains 113 trees per acre and 1,878 cubic feet of volume per acre after 45 years.

464. Saccardo, F. 1963. /THE EFFECTS OF X-RAYS AND IAA ON ROOT INITIATION AND BUD DEVELOPMENT ON BRANCHES OF JUGLANS AND PTEROCARYA./ Ann. Fac. Agr., Univ. Cattolica del Sacro Cuore, Milano (n.s.) 3(2): 273-304. /In Italian, English summary/

In experiments on dormant cuttings of Juglans regia treated with (a) X-rays and/or (b) IAA, (b) alone, but not (a) alone, resulted in callus formation on a small percent of cuttings; but (a) accelerated callus formation on (b)-treated cuttings. The histology of callus formation was similar in both species. Irradiation of buds at 10,000 R caused their death; at 4000 to 10,000 R, lateral meristems were formed and leaves were misshapen.

465. Sargent, C. S. 1894. A HYBRID WALNUT TREE. Gard. and Forest 7:434-436, illus. /Not seen./

466. Savchuk, L. N. 1960. /EFFECT OF SOME PLANT PHYTONCIDES ON DIGESTIVE PROCESSES./ Tr. Odessk. Gos. Univ. im. I. I. Mechnikova, Ser. Biol. Nauk 9, 150:189-192. /In Russian/

Phytoncide extracted from walnut enhanced secretory and motor functions in small intestines of dogs and rabbits, perhaps through effect on intestinal micro-organisms.

467. Schacht, Hermann. 1854. Ueber die Keimung der Wallnuss. /GERMINATION OF THE

WALNUT./ In: Beitr. Anat. u Physiol. Gewächse: 105-114, illus.

Morphology and development of the germinating Juglans regia seedling, with particular emphasis on contrasting development of stem and root.

468. Schad, C., and Grente, J. 1955. Recherches d'arboriculture fruitiere de la Station d'Amélioration des Plantes de Clermont Ferrand. III. Amélioration du noyer. Compte rendu des travaux effectuès en 1953. /WALNUT BREEDING./ Ann. Inst. Nat. Rech. Agron., Paris, Ser. B. 5:286-301.

Some Juglans nigra x regia hybrids combine Phytophthora resistance with vigor.

469. Schaeffer, A. 1909. Le noyer noir. /BLACK WALNUT./ Soc. Forest. Franche-Comte Belfort Bull. 10:444-448, illus.

Growth and yield prospects for Juglans nigra in France.

470. Schanderl, H. 1964. Untersuchungen über die Blütenbiologie and Embryonenbildung von Juglans regia. /INVESTIGATIONS ON FLOWERING BIOLOGY AND EMBRYO DEVELOPMENT IN J. REGIA./ Biol. Zentralbl. 83:71-103.

The formation of aposporous embryos from nucellar cells was observed in isolated female flowers. In many flowers the nucellus contained no embryo sac. The trees in the Geisenheim collection fell into the following three types: A, those with only a slight tendency towards apomixis; B, those which in some years form a high percentage of well-developed fruits when isolated, but in other years none; and C, those always able to set fruit when isolated, the percentage varying from year to year. Apomixis in isolated flowers was also observed in J. nigra, but in this species the percentage of empty fruits is much higher. The greater frequency of apomixis in central European material than in French walnuts is probably related to climatic differences

471. Schanderl, H., Staudenmayer, Th., and Werckmeister, P. 1963. Über Zucker in Pollenkornen. /ON SUGAR IN POLLEN GRAINS./ Naturwiss. 50:444.

Juglans regia pollen contains sucrose, glucose, fructose, and probably invertase.

472. Schlinger, E. I., Hagen, K. S., and Bosch, R. van den. 1960. IMPORTED FRENCH PARASITE OF WALNUT APHID ESTABLISHED IN CALIFORNIA. Calif. Agr. 14(11):3-4, illus.

A parasitic wasp, Trioxys pallidus Haliday, is successfully established in local areas of northern and southern California where it parasitizes the walnut aphis, Chromaphis juglandicola (Kaltenbach).

473. Schneiderhan, F. J. 1927. THE BLACK WALNUT (Juglans nigra L.) AS A CAUSE OF DEATH OF APPLE TREES. Phytopathology 17:529-540, illus.

Thirteen examples of apple trees apparently killed by walnut trees at distances of up to 80 feet, averaging about 50 feet. The Stayman variety of apple may be resistant to walnut toxicity.

474. Schneiders, Erich. 1948. Der neuzeitliche Walnussbau. /MODERN WALNUT CULTURE/ Ed. 2, 127 pp., illus. Stuttgart: Eugen Ulmer.

Culture of Juglans regia, with primary emphasis on nut production. Includes sections on varieties; propagation by seed and grafting; spacing and intercropping; soil and climatic requirements; economics; insect, disease, and winter injury; and timber production.

475. Schneiders, Erich. 1948. Schwarznuss in Forst und Landschaft. /THE BLACK WALNUT IN FORESTRY AND AGRICULTURE./ Berlin: Siebeneicher 72 pp., illus.

A manual on the culture of Juglans nigra in the forest and in roadside or specimen plantings. Includes sections on silvics, site selection, planting, growth, cultural practices, yield, valuation, and production of nuts as well as timber.

476. Schönberg, Franz. 1917. Der Walnussbaum: seine Anzucht und Pflege. /ENGLISH WALNUT CULTURE./ 77 pp., illus. Stuttgart: Eugen Ulmer.

Primarily culture of Juglans regia for nuts, but includes silvics and developmental morphology of seed and seedlings.

477. Schramm, W. O., and Kellogg, L. F. 1941. LOCAL VOLUME TABLE FOR BLACK WALNUT (JUGLANS NIGRA) IN FRANKLIN COUNTY, OHIO. U.S. Forest Serv. Cent. States Forest Exp. Sta. Tech. Note 31, 1 p.

Basis, 79 trees. Prepared by curving volume of merchantable length over d.b.h.

478. Schreiber, M. 1934. Bestandesweiser Anbau der Schwarznuss. /CULTURE OF BLACK WALNUT STANDS./ Wiener Allg. Forst-und Jagdzeitung 52(9): 41-42.

The author is skeptical about mixed planting of Juglans nigra and other species except for the possibility of introducing shade-tolerant species beneath walnut stands to help reduce bole sprouting.

479. Schreiner, E. J. 1949. CAN BLACK WALNUT POISON PINES? Penn. Univ. Morris Arboretum Bull. 4:94-96.
The answer seems to be "yes".

480. Schuster, C. E. 1937. DIFFERENCES IN HETEROSIS OF WALNUT HYBRIDS. J. Hered. 28: 216-217.
Juglans regia var. 'Franquette' produced progeny averaging 133 cm. tall at age 3 when pollinated by J. nigra var. 'Stabler'. When another black walnut tree was used as pollen parent the progeny averaged only 60 cm. tall.

481. Schuster, C. E., Stephenson, R. E., and Evendun, William. 1944. MYCORHIZAS OF FILBERT AND WALNUT TREES IN OREGON ORCHARDS. Bot. Gaz. 105(3):388-392, illus.
Juglans hindsii rootstocks in Persian walnut orchards were almost completely infected with endotrophic mycorrhizae regardless of soil depth or fertility. The fungi are presumed to be indigenous.

482. Schwappach. 1888. Ueber den Anbau der Carya- und Juglans-Arten. /INTRODUCTION OF CARYA AND JUGLANS SPECIES./ Z. Forst- und Jagdwesen 20:14-18.
Soil suitability and frost damage susceptibility of J. nigra.

483. Schwappach. 1908. Erfahrungen über den Anbau von Juglans nigra and Carya alba. /EXPERIMENTAL INTRODUCTION OF J. NIGRA AND C. ALBA./ Z. Forst-und Jagdwesen 40: 772-776.
Yield of young plantations in Germany.

484. Schwarz, Hans. 1931. Die Beständesverhältnisse von Juglans nigra. Centralbl. Gesamte Forstwesen 57(7/8):202-220.
A listing of tree species found associated with J. nigra in several areas within the natural range.

485. Schwarz, Hans. 1931. Die Standorts-und Beständesverhältnisse von Juglans nigra L. in ihrem natürlichen Verbreitungs- gebiete in Ostamerika. Centralbl. Gesamte Forstwesen 57(1):1-12.
Natural range and soil and altitudinal limitations of occurrence of J. nigra.

486. Schwarz, Hans. 1932. Die klimatischen Bedingungen des besten Geideihens der Amerikanischen Schwarznuss (Juglans nigra) im Optimum ihres natürlichen Verbreitungsgebietes in Nordamerika als Anbauweiser dieser Holzart für Europa. /CLIMATIC CONDITIONS IN THE OPTIMUM RANGE OF BLACK WALNUT AS AN INDICATION OF SUITABILITY OF THE SPECIES FOR CULTIVATION IN EUROPE./ Allg. Forst-und Jagdzeitung 108:137-140.
Suggests regions in Europe where climate is similar to the area in America where walnut grows best.

487. Schwarz, Hans. 1932. Über die Möglichkeiten des Anbaues der amerikanischen Schwarznuss in Österreich. /POSSIBILITY OF ESTABLISHING AMERICAN BLACK WALNUT IN AUSTRIA./ Centralbl. Gesamte Forstwesen 58(2):65-68.
It should be possible to select suitable sites for planting Juglans nigra in Austria.

488. Schwarz, Hans. 1932. Verfahren zur Überwinterung der Schwarznuss. /OVERWINTER STORAGE OF BLACK WALNUTS./ Wien. Allg. Forst-und. Jagdzeitung 50(52):281.
Stratification is necessary.

489. Schwarz, Hans. 1933. Beständesverhältnisse und Mischholzarten der Schwarznuss. /STAND RELATIONSHIPS AND MIXED FORESTS OF BLACK WALNUT./ Oesterr. Vierteljahrgang 83:74-77.

490. Schwarz, Hans. 1934. Der Anbau der Schwarznuss in Deutschland in Lichte ihrer klimatischen Grenz-bedingungen in Nordamerika. /CULTURE OF BLACK WALNUT IN GERMANY IN LIGHT OF ITS RANGE RESTRICTIONS IN NORTH AMERICA./ Z. Weltforstwirtsch. 10-12:666-673, illus.
Compares regions of Germany to areas within the natural range of Juglans nigra in terms of altitude, length of growing season, average growing season, and midsummer temperatures.

491. Schwarz, Hans. 1934. Botanisches über die Schwarznuss. /SILVICS OF BLACK WALNUT./ Wien. Allg. Forst-und Jagdzeitung 52(29): 131-132.
Natural range, flowering, fruiting, seed germination, and seedling development.

492. Schwarz, Hans. 1936. Das Holz der Schwarznuss. /THE WOOD OF BLACK WALNUT./ Forstwiss. Centralbl. 80(3):91-95.
Technical properties, mineral content, and anatomy of Juglans nigra wood.

493. Schwarz, Hans. 1939. Anbau der Schwarznuss in Grossdeutschland. /CULTIVATION OF THE BLACK WALNUT IN GREATER GERMANY./ Allg. Forst-und Jagdzeitung 115:268-270.
Silvics, with recommended altitudinal limits for planting in different areas.

494. Seibert, Russell J. 1950. A BLACK WALNUT (JUGLANS NEOTROPICA) FOR CENTRAL AMERICA.

Ceiba 1:190-192.
/Not seen/

495. Seidel, K. W. 1961. SEEDED BLACK WALNUT TALLER THAN PLANTED WALNUT ON KANSAS SPOIL BANKS. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note 148, 1 p.
Ten years after planting, direct-sown Juglans nigra was significantly taller than were planted trees, with a mean height of 6.6 vs. 5.3 ft., but showed no significant difference in form or survival. Inferior growth of planted stock was attributed to damage to the taproots in transplanting, with subsequent development of lateral roots and impaired ability to reach moisture on a dry site.

496. Seidel, K. W., and Brinkman, K. A. 1962. MIXED OR PURE WALNUT PLANTINGS ON STRIP-MINED LAND IN KANSAS? U.S. Forest Serv. Cent. States Forest Exp. Sta. Tech. Paper 187, 10 pp., illus.
When planted in mixture with black locust, black walnut showed impaired survival, growth, and form. When planted with other species (bur oak, sycamore, redcedar, green ash), however, walnut grew almost as well as in pure stands. Mixed plantings are recommended because they usually result in better trees.

497. Seneta, W. 1955. Azjatyckie gatunki Juglans z sekcji Cardyocaryon Dode. /ASIATIC SPECIES OF JUGLANS, SECTION CARDYOCARYON./ Roczn. Dendrol. Pol. Tow. Bot., Warsaw 10:405-413. /In Polish, English summary/
A review of taxonomical papers.

498. Seneta, W. 1962. /COMPARATIVE MORPHOLOGY OF SHOOTS OF JUGLANS./ Roczn. Dendrol. Pol. Tow. Bot., Warsaw 16:101-112. /In Polish with English summary/
Describes 1-year leafless shoots of 7 species, and constructs a key for them.

499. Senni, L. 1932. Il noce. /THE WALNUT./ L'Alpe 112-118, illus.
Juglans regia characteristics and Italian timber production, import, and export data for the late 1920's.

500. Serr, E. F. 1954. ROOTING PARADOX WALNUT HYBRIDS. Calif. Agr. 8(5):7, illus.
Seedlings were planted in the bottom of a 6-inch-deep trench, at an angle of about 45° with the horizontal. As soon as buds started, the trees were staked flat in the bottom of the trench. Buds on the upper side were the only ones that grew. As the shoots grew, the trench was gradually filled with potting mixture, keeping the level just a little below the growing tips. The shoots from the layers averaged 40 inches in height by the end of the season. In December there was an average of almost four roots growing on or near the base of each shoot. These roots averaged about one-sixth inch in diameter.

501. Serr, E. F. 1959. BLACKLINE IN WALNUT. Calif. Agr. 13(3):8-9, 14-15, illus.
The effect of blackline, the death of a narrow strip of cambium and bark at the union of Juglans regia top and rootstock, indicating a delayed incompatibility between them, is discussed and illustrated. Salvaging methods are described.

502. Serr, E. F. 1960. WALNUT ORCHARDS ON VOLCANIC SOILS DEFICIENT IN PHOSPHORUS. Calif. Agr. 14(6):6-7, illus.
Juglans regia orchards growing on soils derived from obsidian suffered from leaf burn, and foliage contained only about half normal phosphorus content. Surface applications of triple superphosphate are not always effective in correcting such deficiencies, because much of the phosphorus is fixed by the soil.

503. Serr, E. F. 1961. NUTRITIONAL DEFICIENCIES IN CALIFORNIA WALNUTS. Calif. Agr. Exp. Sta. Leafl. 137, 12 pp., illus.
Symptoms of and treatments to correct deficiencies in nitrogen, zinc, boron, manganese, iron, potash, copper, phosphorus, and magnesium.

504. Serr, E. F. 1961. RESPONSE OF PERSIAN WALNUT TO SUPERPHOSPHATE. Amer. Soc. Hort. Sci. Proc. 77:301-307, illus.
Two Juglans regia orchards in California showed yellowing, bronzing, and burning of leaves, weak growth, branch dieback, and other symptoms of phosphorus and calcium deficiency. Treatment of a young orchard with 25 to 50 pounds of triple superphosphate per tree improved foliage and growth; 50 to 100 pounds of triple superphosphate per tree improved foliage and nut yield of mature trees. Check trees remain in poor condition in both orchards.

505. Serr, E. F., and Day, L. H. 1949. LESION NEMATODE INJURY TO CALIFORNIA FRUIT AND NUT TREES, AND COMPARATIVE TOLERANCE OF VARIOUS SPECIES OF JUGLANDACEAE. Amer. Soc. Hort. Sci. Proc. 53:134-140, illus.
The 'Paradox' hybrid (Juglans hindsii x regia) is more resistant to lesion nematode injury than any of 11 other Juglans species tested.

506. Serr, E. F., and Forde, H. I. 1951. COMPARISON OF SIZE AND PERFORMANCE OF MATURE PERSIAN WALNUT TREES ON PARADOX HYBRID AND J. HINDSII SEEDLING ROOTSTOCKS. Amer. Soc. Hort. Sci. Proc. 57:198-202.
Paradox hybrid rootstocks are generally superior to J. hindsii stocks, especially in that the hybrid is more resistant to the root-lesion nematode, and probably more resistant to crown rot.

507. Serr, E. F., and Forde, H. I. 1956. WALNUT BREEDING. Amer. Soc. Hort. Sci. Proc. 68:184-194.
Progenies obtained from selfing and crossing Persian walnut varieties indicate that factors such as time of leafing, number of pistillate flowers produced, nut size, kernel weight, and maturity date are controlled by multiple gene inheritance. Pollination techniques are described.

508. Shaidurov, V. 1962. /ACCLIMATIZATION OF THE PERSIAN WALNUT IN ZAILIISK ALATAU./ Vest. Akad. Nauk Kazakhsk S.S.R. 9:90-91. /In Russian. Translated in Referat. Zh., Biol., No. 14V5, 1963./
Trees began to reproduce in sheltered locations 9 years after sowing.

509. Shchepotiev, F. L. 1950. /METAXENIA IN JUGLANS NIGRA FRUITS FROM POLLINATIONS BY J.REGIA AND J. MANDSHURICA./ Priroda, Moskva 39(11): 59-61, illus. /In Russian/ /Not seen./

510. Shchepotiev, F. L. 1950. /TWIN FRUITS IN JUGLANS REGIA./ Priroda, Moskva 39(11): 56-59, illus. /In Russian/ /Not seen./

511. Shchepotiev, F. L. 1951. /BREEDING FROST-RESISTANT FORMS OF JUGLANS REGIA./ Tr. Inst. Les. 8:95-114, illus. /In Russian/
Reviews work in the extension of walnut-growing to central and northern regions of Russia by (a) selection of J. regia seedlings for frost resistance, and (b) hybridization of J. regia with J. nigra, J. mandshurica and J. cinerea.

512. Shchepotiev, F. L. 1954. /THE DIVERSITY OF FLOWERS IN THE CROWN OF THE PERSIAN WALNUT (JUGLANS REGIA L.)/ Dokl. Akad. Nauk USSR 96(1): 197-200. /In Russian. English translation, OTS 60-51010, available from U.S. Dep. Commerce./
As compared with female flowers in inner portions of the tree crown, peripheral female flowers are larger, bloom earlier, and produce larger fruit. In turn, the larger fruit develops into larger, stronger seedlings.

513. Shchepotiev, F. L. 1955. /LAMMAS SHOOT GROWTH AND SECOND FLOWERING IN JUGLANS REGIA./ Bot. Zh. 40(1):116-125. /In Russian./
With particular reference to anomalies in leaves and flowers, including the production of bisexual flowers. Second flowering is common in years with late spring frosts, which damage the ovaries of the first normal flowering.

514. Shchepotiev, F. L. 1960. /DISTANT HYBRIDIZATION OF SPECIES OF THE GENUS JUGLANS L. IN THE UKRAINE./ In: Distant Hybridization of Plants and Animals:140-154. /In Russian/
Hybrid walnuts Juglans regia x cinerea, J. regia x nigra, and J. cinerea x mandshurica are all more winter hardy than J. Regia.

515. Shchepotiev, F. L. and Borisenko, T. T. 1949. /PHOTOSYNTHESIS IN J. REGIA OF DIFFERENT SEED ORIGIN./ Dokl. Akad. Nauk SSSR 67(5):933-936, illus. /In Russian/

516. Shchepotiev, F. L., and Pobiegailo, A. I. 1954. /THE VIABILITY OF J. NIGRA POLLEN IN AN ARTIFICIAL MEDIUM./ Dokl. Akad. Nauk SSSR 98(2):289-291. /In Russian/
In vitro.

517. Shchepotiev, F. L., and Pobiegailo, A. I. 1956. /THE USE OF RADIOACTIVE ATOMS IN FOREST RESEARCH./ Les. Khoz. 1:22-26. /In Russian/
As a possible aid in producing interspecific Juglans hybrids.

518. Shilova, N. V. 1963. /STRUCTURE OF JUGLANS REGIA SCALES AND LEAVES AND THE PERIODICITY OF THEIR APPEARANCE./ Tr. Bot. Inst. Akad. Nauk SSSR Ser. 4, 16:101-113. /In Russian, English summary/
J. regia scales differ from leaves by a more prolonged plastochrom and a slower tissue differentiation. Scales are formed at lower temperatures, in mid-June, while leaves are formed at higher temperatures. True scales develop from the whole leaf primordium; the first signs of specialization can be seen in 90-micron embryos.

519. Šika, A. 1957. /ROOT DEVELOPMENT IN YOUNG BLACK WALNUT AND PERSIAN WALNUT PLANTS./ Sb. Cesk. Akad. Zeměděl, Ved (Les.) 3(11):769-784, illus. /In Czech./ /Not seen./

520. Šika, A. 1958. /GROWTH REQUIREMENTS OF BLACK WALNUT TREES./ Věd. Práce Vyzkumn. Ust. Lesa Myslivosti Cesk. Zeměděl. 2:61-79,

illus. /In Czech. Russian and German summaries, pp. 78-79./

In Czechoslovakia, 4-year-old Juglans nigra seedlings were as much as 4 meters tall. Most height growth took place in June, but the period of rapid growth extended later into the summer in Moravian plantations.

521. Šika, A. 1959. /THE ROOT SYSTEM OF JUGLANS NIGRA./ Sb. Česk. Akad. Zeměděl (Les.) 5(3):267-290. /In Czech./

Investigates the morphology and ontogeny of the root system of young and mature J. nigra trees at different sites in Czechoslovakia, including the extent of root formation at various depths down to 260 cm.

522. Sitton, B. G. 1931. VEGETATIVE PROPAGATION OF THE BLACK WALNUT, WITH SPECIAL REFERENCE TO THE FACTORS INFLUENCING CALLUS FORMATION AND UNION IN GRAFTING. Mich. Agr. Exp. Sta. Tech. Bull. 119, 45 pp., illus.

Scion wood 2 or 3 years old callused better when grafted than did older or younger scion wood. Similarly, scions from 3/8 to 5/8 inch in caliper gave better results in grafting than those larger or smaller. Best callusing and graft union formation took place at temperatures between 25° and 30° C.

523. Smith, Clayton O., and Barrett, James T. 1930. SOME INOCULATIONS OF JUGLANS WITH PHYTOPHTHORA-LIKE FUNGI. Phytopathology 20: 849-850. (Abstr.)

Artificial inoculations with Phytophthora fungus apparently responsible for walnut crown rot yielded 82 percent positive lesions on Juglans regia, 80 percent possible lesions on J. californica, and 50 percent on J. hindsii. Four other Juglans species were also susceptible.

524. Smith, Clayton O., and Barrett, James T. 1931. CROWN ROT OF JUGLANS IN CALIFORNIA. J. Agr. Res. 43(10):885-904, illus.

The disease, probably caused by Phytophthora cactorum, is especially damaging to Juglans californica and J. hindsii used as rootstocks for J. regia. Artificial inoculations also caused lesions on 7 other Juglans species and the 'Paradox' hybrid.

525. Smith, Ralph E., Smith, Clayton O., and Ramsey, Henry J. 1912. WALNUT CULTURE IN CALIFORNIA: WALNUT BLIGHT. Calif. Agr. Exp. Sta. Bull. 231, pp. 119-398, illus.

Describes several species, hybrids, and varieties of walnut; cultural practices in the orchard and nursery; and propagation. Diseases, particularly walnut blight or bacteriosis, including a technical study of the disease organism, are considered at length.

526. Smith, Ralph E., and Smith, Elizabeth H. 1925. FURTHER STUDIES ON PYTHIACEOUS INFECTION OF DECIDUOUS FRUIT TREES IN CALIFORNIA. Phytopathology 15:389-404, illus.

Several fungi of the genera Pythiacystis and Phytophthora, which cause crown or trunk cankers on nursery and orchard black walnut, should perhaps be merged into the genus Pythium.

527. Smith, Ralph E. 1949. Las nueces y bolbones. Pacific Discovery 11(6):9-17, illus.

Juglans in California history.

528. Smith, Richard Meriwether. 1942. SOME EFFECTS OF BLACK LOCUSTS AND BLACK WALNUTS ON SOUTHEASTERN OHIO PASTURES. Soil Sci. 53: 385-398, illus.

On ordinary pasture, not very productive in the area, the introduction of widely spaced black walnuts should cause no injury and in many cases would improve forage, whether measured in terms of species, yield, composition, palatability, or seasonal distribution. In highly productive white clover-Kentucky bluegrass pasture, addition of trees would cause considerable injury. The beneficial effect of walnut trees on pasture is ascribed to the moderating influence of light shade, remineralization of surface soil through leaf fall, and tree root competition with deep-rooted weeds but not with grass.

529. Smith, Sterling. 1943. THE PROPAGATION OF BLACK WALNUTS THROUGH BUDDING. N. Nut Growers Ass. Annu. Rep. 34:89-91.

The author recommends: (1) Cut back walnut seedlings to 4-inch height at the end of 1 year in the nursery. (2) Early in July (along the southern shore of Lake Erie) wound the stock plant with the Jones patch budding tool at a point several inches above the beginning of new growth. Do not remove the bark patch. The wounding promotes callus formation. (3) At the same time, select bud sticks and cut off leaves close to the first 5 good buds on new growth. (4) About 3 weeks (in dry season) to 5 weeks (in wet years) later, cut again and remove the bark patch from the previously wounded location on the stock. The cut petioles will now have ripened and fallen off the bud stick, and buds with hardened bark can now be cut, placed, tied, and waxed.

530. Šobek, Josef. 1957. Vliv počasí v zimě 1955-1956 na poškození Vlašských ořešáků. /INFLUENCE OF THE CLIMATE IN THE WINTER OF 1955-1956 ON DAMAGE TO WALNUT TREES./ Sb. Česk. Akad. Zeměděl. Věd. 3:133-140, illus.

/Russian, English, and German summaries, p. 140./

Damage to walnut trees in February 1956 was dependent not only on low temperature during that month but also on warm temperature during the preceding month. The greater the difference between the January maximum and the February minimum, the greater the damage.

531. Šobek, Josef. 1958. /ON THE PROFITABILITY OF GROWING JUGLANS REGIA IN CZECHOSLOVAKIA./ Sb. Česk. Akad. Zeměděl. Věd. 4(3):293-403. /In Czech./

Analyzes data on yields and frost damage in Czechoslovakia and on this basis suggests where plantations, small groups of trees or avenues, and only individual trees should be established.

532. Šobek, Josef. 1958. /WALNUT GROWING REGIONS OF CZECHOSLOVAKIA./ Sb. Česk. Akad. Zeměděl. Věd. 4(2):173-188, illus. /In Czech. with German summary./

Compares the temperature, light, moisture, and soil conditions of Czechoslovakia with those of other successful walnut-growing countries, and on this basis divides Czechoslovakia into 4 zones--ranging from one where large plantations of walnuts could be established, to one where walnuts should not be planted at all.

533. Sommer, Noel F. 1955. SUNBURN PREDISPOSES WALNUT TREES TO BRANCH-WILT. Phytopathology 45(11):607-613, illus.

The fungus Hendersonula toruloidea Nattrass is only weakly parasitic on normal branches of vigorous Juglans regia trees but causes serious cankers on branches that are only mildly sunburned. Whitewash applications effectively reduce canker development, apparently by preventing sunburning.

534. Sommer, Noel F. 1956. SPORULATION OF HENDERSONULA TORULOIDEA IN PERSIAN WALNUT (JUGLANS REGIA) XYLEM. Phytopathology 46(1):27. (Abstr.)

The fungus gains entrance to susceptible tissue through wounds and sporulates in the xylem vessels. The spores can move through the vessels.

535. Sopp, L. 1958. /RESULTS OF INVESTIGATION INTO THE VOLUME AND STEM FORM OF J. NIGRA./ Erdo 7(7):262-274. /In Hungarian/ /Not seen./

536. Španović, T. 1954. /THE BLACK WALNUT TREE--JUGLANS NIGRA L./ Shumarstvo 7(1): 37-46, illus. /In Serbian, with English and German summaries./

The most important North American exotic grown in Yugoslavia is the black walnut. It grows best on good Quercus robur sites, reaching a height of 25 to 30 meters.

537. Spence, Howard. 1924. SOME NOTES ON NUT GROWING IN THE NORTHERN UNITED STATES. J. Pomol. and Hort. Sci. 4:1-23, illus.

Gives brief history of walnut cultivation in the western U. S. and notes on some insect and disease pests--particularly on nut trees.

538. Spijicvic, T. 1954. /JUGLANS NIGRA./ Shumarstvo 7(1):37-46, illus. /In Serbian, with English summary/

Describes and lists the chief stands of J. nigra in Yugoslavia, with some data on propagation, growth, and increment; and advocates conducting detailed studies on this valuable species.

539. Stadelmann, R., and Mirimanoff, A. 1950. Contribution a la phytochimie du péricarpe de Juglans regia L. Phyton 2(1/3):1-7, illus.

An unusually large proportion of reducing substances was found.

540. Stanescu, C. 1960 /J. REGIA IN THE PLOESTI DISTRICT OF RUMANIA./ Rev. Padurilor 75(7):403-408, illus. /In Rumanian, with English summary/

Describes the natural occurrence of the species, and successful experiments in planting it in mixture with poplar, oak, and other hardwoods. Concludes that it may be grown successfully as a forest tree in this region, at altitudes of 200-500 m. according to the aspect of the site.

541. Stark, Eric W. 1953. WOOD ANATOMY OF THE JUGLANDACEAE INDIGENOUS TO THE UNITED STATES. Purdue Agr. Exp. Sta. Bull. 595, 42 pp., illus.

A description of native Juglans and Carya woods including specific gravity, and vessel, fiber, and ray dimensions.

542. Steward, F. C., and Caplin, S. M. 1952. INVESTIGATIONS ON GROWTH AND METABOLISM OF PLANT CELLS. IV. EVIDENCE ON THE ROLE OF THE COCONUT MILK FACTOR IN DEVELOPMENT. Ann. Bot. (n.s.) 16(64):491-504, illus.

The watery endosperm of coconut contains the growth-promoting factor at all stages of development. Analogous activity is found in the endosperm of Zea mays, immature fruits of Juglans regia, and the young gametophyte of Ginkgo biloba.

543. Stolyarov, M. V. 1960 /ISOPHYA REDTENBACHERI IN GEORGIA./ Zashch. Rast. Vred.

Bolez. 5(8):36-37, illus. /In Russian/
This cricket prefers to eat woody plants, including walnuts. DDT spray in June killed 53 percent of the insects, whereas dusting with 12 percent BHC in early July was 96 percent effective.

544. Stritzke, S. 1953. Grundlagen für eine erfolgreich Ausweitung des Walnussanbaues in Mitteldeutschland. /EXTENSION OF WALNUT GROWING IN CENTRAL GERMANY./ Arch. Gartenbau 1:407-416, illus.
Includes vegetative propagation and pollination.

545. Strogii, A. A. 1928. /THE MANCHURIAN WALNUT, J. mandshurica Max./ Bul. Appl. Bot., Genet., and Plant Breed. 18(1927) (2): 247-302. /In Russian, with English summary/
Range, description, silviculture, and wood properties. The species is much hardier than J. regia.

546. Sudworth, George B. 1913. CIRCASSIAN WALNUT. U.S. Dep. Agr. Forest Serv. Circ. 212, 12 pp., illus.
Circassian walnut (Juglans regia Linn.) characteristics, supply, and utilization.

547. Sudworth, George B. 1934. POPLARS, PRINCIPAL TREE WILLOWS AND WALNUTS OF THE ROCKY MOUNTAIN REGION. U.S. Dep. Agr. Tech. Bull. 420, 111 pp., illus.
Differentiates Juglans major and J. microcarpa on the basis of morphological characteristics, range, and habitat.

548. Swirski, E. 1954. THE LIFE HISTORY OF CHROMAPHIS JUGLANDICOLA KETB. (APHIDOIDEA, HOMOP.) IN ISRAEL. Bull. Res. Coun. Israel 4(3):307.
Presents a table illustrating population fluctuations on leaves of Juglans regia throughout the year.

549. Taverna, Giuseppe. 1964. L'attività dello juglone nel metabolismo delle juglandacee. Ann. Fac. Sci. Agr. Napoli 29:379-388, illus. /In Italian; English and French summaries, p. 387./
In the presence of chloroplasts and light, juglone participates in the Hill reaction as a hydrogen acceptor. Conversion of juglone into hydrojuglone is controlled by ascorbic acid and ferrous ion concentration.

550. Telfer, J. 1913. RAISING BLACK WALNUT TREES FROM ENGLISH SEED. Quart. J. Forest. 7:225-226, illus.
After one good growing season, seedlings averaged 14 inches tall; the largest was 18 inches. Tap roots were up to 18 inches long.

551. Thomsen, H. H. 1963. JUGLANS HINDSII, THE CENTRAL CALIFORNIA BLACK WALNUT, NATIVE OR INTRODUCED? Madroño 17(1):1-10.
A study of fossil material leads to the conclusion that J. hindsii is indigenous in this area.

552. Thomson, G. W. 1957. GROWTH OF PLANTATION BLACK WALNUT IN SOUTHEASTERN IOWA AS RELATED TO CERTAIN SOIL PROPERTIES. Iowa State Coll. J. Sci. 31(3):534-535. (Abstr.)
In studies on 15- to 17-year-old trees grown on silt loam, positive correlations were found between site index and soil depth, pH, available N, K, and Ca, and negative ones with Fe and Al content. Positive correlations were also found between site index and content of Ca, Mg, K, and N in leaves.

553. Thomson, G. W., and McComb, A. L. 1962. GROWTH OF PLANTATION BLACK WALNUT IN RELATION TO pH AND CERTAIN CHEMICAL FACTORS OF THE SOIL. Forest Sci. 8(4):322-333, illus.
In the southeastern Iowa area studied, an inadequate supply of calcium and/or potassium appeared to be the most important factors associated with poor walnut growth.

554. Thornber, J. J. 1915. WALNUT CULTURE IN ARIZONA. Ariz. Agr. Exp. Sta. Bull. 76: 469-503, illus.
Describes grafting techniques, desirability of native Arizona walnut rootstocks, and orchard cultural practices.

555. Thorne, Gerald. 1943. CACOPAURUS PESTIS, NOV. GEN., NOV. SPEC. (NEMATODA: CRICONEMATINAE), A DESTRUCTIVE PARASITE OF THE WALNUT, JUGLANS REGIA LINN. Helminth. Soc. Proc. 10(2):78-83, illus.
J. hindsii is apparently resistant to attack by this nematode.

556. Tischler, G. 1936. Pflanzliche Chromosomen-Zahlen. Nachtrag No. 2, part 2. Tab. Biol., Berlin 6:57-115.
All Juglans species examined had a diploid chromosome number of 32.

557. Tuychiev, M. T. 1960. /JUGLANS REGIA IN CENTRAL ASIA./ Akad. Nauk Uz. SSR, 332 pp. /In Russian/
Covers the history of investigations on J. regia in area, its distribution, systematy, biological features, ecology, and forest types, and the history of the forests.

558. Tuttle, H. Lynn. 1948. A METHOD OF BUDDING WALNUTS. N. Nut Growers Ass. Annu. Rep. 38(1947):74-76.
T-budding of J. regia can often be done throughout the summer in Washington, provided the vertical bark cut of the T is extended

well below the bud to allow adequate sap drainage.

559. Tuz, A. S. 1958. /ANOMALOUS FLOWERING AND FRUITING OF JUGLANS REGIA./ Priroda, Moskva 47(5):91-92. /In Russian/

Describes a specimen of Juglans regia 6 m. high at Karakum, Fergana province, that flowers in May/June (i.e., 30-40 days later than usual), and might be useful in breeding of late-flowering forms with a view to wider cultivation of this species. On this plant the fruit was on shoots of the lowest buds formed the previous year.

560. Tymko, M. M. 1952. /THE WALNUT IN SHELTERBELTS AND NUT GROVES./ Dokl. Vses. Akad. Selysk. Nauk 17(6):19-22, illus. /In Russian/

Direct seeding of Juglans regia is recommended for Moldavia. In the spring, stratified seed is sown 6 to 8 cm. deep; in autumn, nuts treated with BHC for rodent control are sown 10 to 12 cm. deep. Deadwood pruning should be done in July or August.

561. Tymko, M. M. 1956. /JUGLANS REGIA IN SHELTERBELTS IN MOLDAVIA./ Dokl. Vses. Akad. selskhoz. Nauk Lenina 21(9):32-35. /In Russian/

Includes growth data for J. regia in a 4-year-old shelterbelt on the Beltsy steppe, with alternate pure rows, at 2.5-m. spacing, and also sown direct in nests of 3 seed-spots, the nests spaced 3 m. apart. Very brief notes are also made on some other young plantations of J. regia in Moldavia.

562. Tymko, M. M. 1963. /EFFECT OF SEED POSITION IN THE SOIL ON THE FORMATION OF THE ROOT SYSTEM AND STEM OF JUGLANS REGIA SEEDLINGS./ Bot. Zh. 48(8):1121-1130, illus. /In Russian with English summary/

Replicated experiments showed that the highest germination percent and best seedling development occur when the suture of the nut is oriented in the vertical plane.

563. U.S. Forest Service. 1907. FOREST PLANTING LEAFLET: BLACK WALNUT (JUGLANS NIGRA). U.S. Dep. Agr. Circ. 88, 5 pp.

564. U.S. Forest Service, North Central Forest Experiment Station. 1966. BLACK WALNUT CULTURE. (Papers presented at the Walnut Workshop, Carbondale, Illinois, August, 1966, conducted by the U.S. Forest Service in cooperation with the American Walnut Manufacturers' Association and the Forestry Department, School of Agriculture, Southern Illinois University.), no series, 94 pp., illus.

Includes 23 papers prepared by researchers and industrialists from many parts of the United States. Some of the subjects discussed were the present inventory and growth of black walnut, techniques in its growth and culture, improvement of the timber quality, quality requirements for veneer and sawlogs, uses of low-grade material, and insect and disease pests.

565. Unchiev, N. D. 1959. DYNAMICS OF MASS GROWTH AND CHANGES IN THE CHEMICAL COMPOSITION OF THE PARTS OF WALNUT FRUITS DURING ONTOGENESIS. Akad. Nauk SSR Biokhim. Plodov Ovoschei Coll. 5:259-276, illus. /English translation: OTS 63-11025, 1963/

Inner septum, exocarp, and mesocarp develop first. The endocarp then forms and hardens, after which the seeds grow and develop rapidly. In contrast to other parts of the walnut fruit, (1) seeds continue to accumulate protein until ripe and (2) the exocarp, mesocarp, and septum contain high water and ash content until the end of ripening.

566. Urich, Karl. 1881. Juglans regia unter Schirmbestand. /J. REGIA IN SHELTERWOOD./ Forstwiss. Centralbl. 25:636-637.

Juglans regia has volunteered under a 43-year-old plantation of Pinus strobus and Robinia pseudoacacia on a very good site near Büdingen, Germany. The walnuts have grown rapidly and with good form up to about 15 feet tall.

567. Vanselow, A. P. 1945. THE MINOR ELEMENT CONTENT OF NORMAL, MANGANESE-DEFICIENT, AND MANGANESE-TREATED ENGLISH WALNUT TREES. Amer. Soc. Hort. Sci. Proc. 46:15-20.

Manganese deficiency in Juglans regia does not seem to affect foliage concentration of other minor elements. Mn deficiency can be corrected by spraying the tree during early summer or by injecting dry manganese sulfate into holes in the trunk or limbs. As contrasted to citrus foliage, walnut leaves have a somewhat lower barium content and a somewhat higher molybdenum and nickel content.

568. Vasilchenko, I. T. 1958. /LEAF POLYMORPHISM IN J. REGIA./ Bot. Zh. 43(2):287-290, illus. /In Russian/

Illustrates three forms of leaf, and discusses other literature on the subject.

569. Vernik, R. S., and Kamalov, S. 1960. /JUGLANDETA OF THE KAINARSAI AREA OF THE BOSTANDYK REGION./ Uz. Biol. Zh. Tashkent 1:20-26. /In Russian/

Describes the Juglandetum hordeosum, gramineosocarecosum, J. mixtoherboso-crataegoso-fruticosum, J. poosum, J. aegopodioso-gramineoso-carecosum, J. aegopodioso-impatiensum, and J. brachypodiosum.

570. Verona, O., and Fagioli, M. 1952. Sulla presunta azione fungicida dello juglone. /THE ALLEGED FUNGICIDAL ACTION OF JUGLONE./ Nuovo G. Bot. Ital. (n.s.) 59(2/4):438-440 /English summary/

Contrary to previous findings, the author found that juglone had only a weakly antibiotic effect on Schizomycetes and none on yeasts or mycelial fungi.

571. Vezev, L. 1963. /JUGLANS REGIA IN THE Maleshevska and Ograzhden mountains./ Izv. Inst. Gorata Bulg. Akad. Nauk, Sofija 13: 41-51. /In Bulgarian/

A survey of the distribution, site requirements, age, condition, and regeneration of J. regia in this area of Bulgaria.

572. Waite, M. B. 1933. NOTES ON SOME NUT DISEASES WITH SPECIAL REFERENCE TO THE BLACK WALNUT. N. Nut Growers Ass. Annu. Rep. 23 (1932):60-67.

Covers fungus diseases including root rots and heart rots, bacterial diseases, virus diseases, mistletoe, nutrient deficiency symptoms, and climatic injury.

573. Walkenhorst. 1933. Ein Versuch mit Juglans regia. /A TRIAL OF ENGLISH WALNUT./ Deut. Forstwirt 15(104):674-675.

A planting trial in southern Hannover with English walnut grown from local seed. 1 + 2-year-old transplants were 1 1/2 to 4 feet tall but, when field planted under a light beech overstory or mixed with beech reproduction, about 90 percent were heavily damaged by roe deer.

574. Walters, C. S. 1951. FIGURED WALNUT PROPAGATED BY GRAFTING. J. Forest. 49:917, illus.

Twenty-two-year-old (7- to 8-inch d.b.h.) grafted trees of the 'Lamb' walnut exhibit figured wood. The figure is more pronounced in the outer part of the bole than near the center.

575. Wang, C. -L. 1960. /EARLY GROWTH AND DEVELOPMENT OF JUGLANS REGIA PLANTATIONS IN RELATION TO THE METHODS OF SOIL PREPARATION IN THE LENIN LESKHOZ, CRIMEA./ Les. Zh. Arhangel'sk 3(2):30-34, illus. /In Russian/

576. Welkerling de Tacchini, E. M. L. 1961. Una variedad de nuez sin cáscara. /A WALNUT VARIETY WITHOUT A SHELL./ Rev. Fac. Cienc. Agr. Mendoza 8:27-30.

Absence of endocarp is apparently a dominant trait.

577. Welkerling de Tacchini, E. M. L., and Onorati, I. A. /n.d./ Polinización en nogales (Juglans regia L.) /POLLINATION IN WALNUTS./ Rev. Invest. Agr. Buenos Aires 17: 341-344.

All nine varieties investigated showed satisfactory selfing when isolated, with no evidence of adverse effects caused by dichogamy.

578. Welkerling de Tacchini, E. M. L., and Onorati, I. A. 1962. Nogales de le colección pomológica de la Estación Experimental Agropecuaria de Lujan de Cuyo. /WALNUTS IN THE POMOLOGICAL COLLECTION OF THE AGRICULTURAL EXPERIMENT STATION OF LUJAN DE CUYO./ Rev. Fac. Cienc. Agr., Mendoza 9:43-53.

Detailed descriptions are given of nine varieties.

579. Welkerling de Tacchini, E. M. L., and Onorati, I. A. 1962. Polinización en nogales (Juglans regia L.). /POLLINATION IN WALNUTS (J. REGIA L.)/ Rev. Fac. Cienc. Agr., Mendoza 9(1):83-86.

580. Wellington, Richard. 1931. BREEDING WALNUTS. N. Nut Growers Ass. Annu. Rep. 22:15-21.

Some J. regia x J. nigra trees showed hybrid vigor; most had intermediate foliage and branchlet pubescence. None of the 17-year-old trees produced many nuts.

581. Weschcke, Carl. 1949. THE IMPORTANCE OF STOCK AND SCION RELATIONSHIP IN HICKORY AND WALNUT. N. Nut Growers Ass. Annu. Rep. 39 (1948):190-195.

Juglans cinerea seedlings used as stock for J. nigra scions are usually incompatible to the extent that the stock does not grow as fast as the scion and eventually dwarfs it.

582. Westfall, Bertis A., Russell, Robert L., and Auying, Theodore K. 1961. DEPRESSANT AGENT FROM WALNUT HULLS. Science 134:1617.

Crushed unripe Juglans nigra hulls, when extracted with ether, yield an extract that sedates or at least depresses the movements of Daphnia magna, leopard frogs, perch, catfish, goldfish, mice, rats, and rabbits.

583. White, Orland E. 1926. GEOGRAPHICAL DISTRIBUTION AND THE COLD-RESISTING CHARACTER OF CERTAIN HERBACEOUS PERENNIAL AND WOODY PLANT GROUPS. Brooklyn Bot. Gard. Rec. 15(1): 1-10.

A brief version of the following paper.

584. White, Orland E. 1928. MUTATION, ADAPTATION TO TEMPERATURE DIFFERENCES, AND GEOGRAPHICAL DISTRIBUTION IN PLANTS. Verhandl. 5 Int. Kongr. Vererbungswiss. 2:1575-1586.

Using Juglans nigra as an example, the author points out that seed of southern origin may be much more winter hardy than its proven-

ance would indicate. Such hardy forms may be morphologically indistinguishable from more tender associates and thus be unrecognized unless moved to a colder environment and tested.

585. Whitehead, D. R. 1963. POLLEN MORPHOLOGY IN THE JUGLANDACEAE. I. POLLEN SIZE AND PORE NUMBER VARIATION. J. Arnold Arboretum 44(1): 101-110, illus.

Presents data on the pollen-size frequency distribution in Carya tomentosa and C. cordiformis, with subsidiary data on 10 other species of Carya and on the pore number variation in Juglans cinerea and J. nigra and discusses the reliability of these criteria for the identification of species.

586. Whitehouse, W. E., and Joley, Lloyd E. 1948. NOTES ON THE GROWTH OF PERSIAN WALNUT PROPAGATED ON ROOTSTOCKS OF THE CHINESE WING-NUT PTEROCARYA STENOPTERA. Amer. Soc. Hort. Sci. Proc. 52:103-106, illus.

J. regia scions grew a little better on Chinese wing-nut rootstocks than on J. hindsii rootstocks.

587. Wiesehuegel, E. G., Zarger, T. G., and Hatmaker, J. F. 1957. HANDLING VALUABLE NURSERY STOCK. S. Conf. Forest Tree Impr. Proc. 4:81-90.

Juglans nigra seedlings suitable for use as budding understocks can be produced in one growing season by using seed with minimum kernel weight of 3 grams, seeding to achieve nursery spacing of 12 x 42 inches, and supplementary irrigation.

588. Wilkinson, J. Ford. 1948. THE GRAFTED CURLY WALNUT AS A TIMBER TREE. N. Nut Growers Ass. Annu. Rep. 39:139-142.

Grafted trees propagated from a highly figured ortet show wood figure in branches 5 to 7 years old.

589. Williams, Robert D. 1963. INDOLEBUTYRIC ACID FAILED TO AID BLACK WALNUT SEEDLING DEVELOPMENT. Indiana Acad. Sci. Proc. 72 (1962):108-111, illus.

Treating Juglans nigra seedlings with indolebutyric acid before field planting failed to stimulate secondary root growth and did not increase field survival or height growth.

590. Williams, Robert D. 1965. PLANT LARGE BLACK WALNUT SEEDLINGS FOR BEST SURVIVAL AND GROWTH. U.S. Forest Serv. Cent. States Forest Exp. Sta., Sta. Note CS-38, 5 pp., illus.

One-year-old Juglans nigra seedlings should have at least 5/32 inch caliper (measured 1 inch above the root collar) for adequate survival in field plantings. Caliper should exceed 7/32 inch for satisfactory growth.

591. Wilson, E. E. 1947. THE BRANCH WILT OF PERSIAN WALNUT TREES AND ITS CAUSE. Hilgardia 17(12):413-430, illus.

Older trees of J. regia, especially if otherwise unthrifty, are most susceptible to the disease. J. hindsii and J. californica are notably less affected. The causal fungus is thought to be in the genus Exosporina.

592. Wilson, E. E. 1949. THE PYCNIDIAL STAGE OF THE WALNUT BRANCH WILT FUNGUS, EXOSPORINA FAWCETTI. Phytopathology 39(5):340-346, illus.

It is found to be the conidial stage of Hendersonula toruloidea.

593. Winkler, Otto. 1932. Geschichte und Verbreitung des Walnussbaums (Juglans regia L.) in einigen nordalpinen Föhntälern der Ostschweiz. /HISTORY AND DISTRIBUTION OF ENGLISH WALNUT IN ALPINE VALLEYS OF EASTERN SWITZERLAND./ Jahrbuch St. Gallischen Naturw. Ges. 66:80-121, illus.

Folklore and history of English walnut in Switzerland and discussion of the value of the species for timber and nuts. Descriptions of several stands with timber potential, especially in the Sernf valley.

594. Winkler, Otto. 1932. Der Nussbaum in der Schweiz auf dem Aussterbeetat? /THE WALNUT IN SWITZERLAND ON THE VERGE OF EXTINCTION?/ Schweiz. Z. Forstwesen 83(7/8): 225-235, illus.

The author recommends greatly increased planting in parks, orchards, and forests.

595. Winkler, Otto. 1934. Schutz des Nussbaumes in Auslände und bei uns. Schweiz. Z. Forstwesen 85:121-122.

A plea for legal protection of walnut trees in Switzerland.

596. Winkler, Otto. 1936. Der Nussbaum als Waldbaum in einigen nordalpinen Föhntälern der Ostschweiz. /THE WALNUT AS A FOREST TREE IN SOME NORTH ALPINE WARM VALLEYS OF EASTERN SWITZERLAND./ Z. Schweiz. Forstver. Beih. 16, 90 pp., illus.

Deals primarily with soil-site relations of J. regia but also includes considerable data on local growth and yield, natural regeneration, development of mixed stands, differentiation of local races, and importance of the walnut industry in Switzerland.

597. Witt, A. W. 1928. THE VEGETATIVE PROPAGATION OF WALNUTS. East Malling Res. Sta. Annu. Rep. (1926-1927. Sup. II):60-64, illus.

Describes two successful methods of grafting Juglans regia and J. nigra: hardwood grafting in March, and greenwood grafting in July and August. Rooting of greenwood cut-

tings has been somewhat successful, most so with the 'Royal' hybrid (J. nigra x californica).

598. Witt, A. W. 1930. FURTHER OBSERVATIONS ON WALNUT GROWING IN ENGLAND. Roy. Hort. Soc. J. 55(2):257-265, illus.
Describes propagation of several Juglans species from seed, by grafting, rooting of greenwood cuttings, and layering of seedlings in the nursery at East Malling.

599. Wokes, F., and Melville, R. 1948. VITAMIN C IN THE WALNUT (JUGLANS REGIA). Biochem. J. 43(4):585-592.
Remarkably high concentrations of vitamin C are found in the endocarp of English walnut. The vitamin C probably originates in some other form in the leaves.

600. Wokes, Frank; Organ, Joan G.; James, Eirene M.; and others. 1944. APPARENT VITAMIN C AS A POSSIBLE PRECURSOR OF TRUE VITAMIN C IN WALNUTS. Nature (London)154(3917): 669-670.
The fruit in earliest stages may contain practically no true vitamin C but very high concentrations of apparent vitamin C. As maturation proceeds the proportion of true vitamin C increases until in the nearly ripe nuts it approaches 100 percent.

601. Wolf, Egbert L. 1928. /MANCHURIAN WALNUTS./ Jard. Bot. Princ. URSS Bul. 27(3): 349-352. /In Russian, German summary p. 352./
Flower and leaf characteristics distinguishing Juglans mandshurica from J. stenocarpa and J. cathayensis.

602. Wood, Milo N. 1934. POLLINATION AND BLOOMING HABITS OF THE PERSIAN WALNUT IN CALIFORNIA. U.S. Dep. Agr. Tech. Bull. 387, 56 pp., illus.
All Juglans regia varieties tested were both self-fertile and inter-fertile provided pollen was available when stigmas were receptive. Blooming date, length of blooming period, and blooming habit as regards dichogamy all vary considerably in response to seasonal weather variation. Young J. regia trees are much more subject to dichogamy than old trees. Walnut pollen viability ranged from 9 to 80 percent and averaged 23 percent. Parthenogenesis sometimes occurs in the walnut.

603. Woodworth, R. H. 1930. MEIOSIS OF MICROSPOROGENESIS IN THE JUGLANDACEAE. Amer. J. Bot. 17(9):863-869, illus.
Meiotic behavior of several species and hybrids and possible phylogenetic connections between Juglandaceae and Betulaceae. All walnuts studied have a haploid chromosome number of 16.

604. Wredden, J. H. 1946. THE MICROSCOPIC EXAMINATION OF PLASTIC MATERIALS. VI.-(b) Fillers (walnut shell flour) contd. Plastics (London) 10:596-600, illus.
The character of walnut shell flour is influenced by three distinct zones found in the shell. Cellulose content diminishes from the inner to the outer zone, which is relatively hard and highly lignified.

605. Wredden, J. H. 1946. THE MICROSCOPIC EXAMINATION OF PLASTIC MATERIALS. VI: MOULDINGS--(b) Fillers (walnut shell flour) contd. Plastics (London) 10:657-663, illus.
Walnut shell flour tends to be granular rather than fibrous. For many uses, walnut shell flour is suitable for blending with wood flour.

606. Wright, Jonathan W. 1954. PRELIMINARY REPORT ON A STUDY OF RACES IN BLACK WALNUT. J. Forest. 52:673-675.
Both racial and individual tree variation in growth rate were apparent in 3-year-old plantations containing 28 families (individual tree progenies).

607. Yablokov, A. E. 1936. /INTER-SPECIES HYBRIDIZATION OF WALNUTS./ Soviet Subtrop. 5(21):53-60, illus. /In Russian; English summary
J. mandshurica crossed readily with J. regia and J. sieboldiana, some combinations proving 64 to 67 percent successful. J. cinerea x J. mandshurica crosses yielded an average of 28 percent hybrid fruit. J. mandshurica x J. sieboldiana crosses produced two sorts of hybrids, one with a growing period of 138 days and seedling growth 2 to 3 times as great as that of seedlings of the parent species, and the second that grew for 148 days to be 5 to 8 times as large as seedlings of the parent species.

608. Yablokov, A. S. 1936. /SELECTION OF WALNUTS FOR RAPID GROWTH AND WINTER HARDINESS./ J. Moscow Sci. Res. Inst. Forest. 2:7-42. /In Russian/
The hybrid J. mandshurica x J. sieboldiana is markedly winter hardy.

609. Yablokov, A. S. 1940. /HETEROGENEITY OF F_1 interspecific hybrids of forest trees./ Yarovizatsiya 4(31):33-40, illus.
Includes walnuts.

610. Yamazaki, T., and Takeoka, M. 1957. /ELECTRONMICROSCOPE INVESTIGATIONS ON THE SURFACE STRUCTURE OF THE POLLEN MEMBRANE.

BASED ON THE CARBON REPLICA METHOD (I). /
J. Jap. Forest. Soc. 39(11):427-434, illus.
/In Japanese with English summary/
Describes and illustrates pollen of Juglans sieboldiana.

611. Yee, C. F., Hwang, P. C., Chen, C. L., and Lo, Y. Y. 1944. /PROPERTIES OF THE WOOD OF HOUTAOMU (JUGLANS REGIA) GROWN IN KWEICHOW./ Bur. Aeronaut. Res., Chengtu Tech. Rep. 12, 6 pp., /In Chinese/
/Not seen/

612. Yu, C. H. 1956. /ON THE PRESENCE OF TRABECULAE IN THE WOOD OF JUGLANS CATHAYENSIS DODE./ Acta Bot. Sinica 5(2):249-251. /In Chinese with English summary/
Illustrates and describes some rows of trabeculae extending radially across a number of fibre-tracheids and some parenchymatous cells in the secondary xylem of J. cathayensis, and discusses their possible significance for identification.

613. Zarger, Thomas G. 1943. BENEFICIAL INFLUENCE OF MULCHES ON TWO YEARS' GROWTH OF PLANTED BLACK WALNUT VARIETIES. Amer. Soc. Hort. Sci. Proc. 43:5-6.
Several mulches stimulated height growth of black walnut trees in the second year after transplanting; broomsedge and well-rotted pine sawdust were most effective.

614. Zarger, Thomas G. 1945. NUT-TESTING, PROPAGATION, AND PLANTING EXPERIENCE ON 90 BLACK WALNUT SELECTIONS. N. Nut Growers Ass. Annu. Rep. 36:23-30, illus.
The varieties, selected primarily for nut quality, differed widely in grafting and budding'take,' and in planting survival.

615. Zarger, Thomas G. 1946. MULCHING EFFECTS ON THE GROWTH OF GRAFTED BLACK WALNUT TREES. Amer. Soc. Hort. Sci. Proc. 47:178-180, illus.
Trees mulched with broomsedge or straw to a depth of 3 to 4 inches grew twice as much in height and diameter in a 5-year period as those receiving no mulch.

616. Zarger, Thomas G. 1957. NURSERY TECHNIQUES IN PRODUCING NUT TREES. N. Nut Growers Ass. Annu. Rep. 48:35-41.
Emphasizes budding, grafting, and handling of clonal material. Also covers seed collection and seedling production.

617. Zarubin, A. F. 1949. /THE POSSIBILITY OF PARTHENOGENESIS IN JUGLANS REGIA AND J. NIGRA./ Priroda, Moscow 38(10):64-65. /In Russian/

618. Zarubin, A. F. 1949. /ON THE QUESTION OF SECONDARY (SUMMER) FLOWERING OF JUGLANS REGIA/ Priroda, Moscow 38(10):65-67, illus. /In Russian/

619. Zarubin, A. F. 1950. /PROPAGATION OF JUGLANS REGIA BY LAYERING COPPICE SHOOTS./ Les. Khoz. (2):46-47, illus. /In Russian/

620. Zarubin, A. F. 1951 /SELECTION OF LATE-FLOWERING WALNUTS./ Tr. Inst. Les. 8:125-127. /In Russian/
Brief notes on work at the Kirgizskaja Lesoplodnaja Stancija towards the development of forms or hybrids of Juglans regia that might escape damage from late frosts.

621. Zarubin, A. F. 1954. /THE REHABILITATION AND DEVELOPMENT OF THE WALNUT/FRUIT-TREE WOODLANDS OF SOUTHERN KIRGIZIA./ Inst. Lesa, Akad. Nauk SSSR, Moscow, 137 pp., illus. /In Russian/
Based on the author's studies, extending over nearly 20 years, with chapters on: regeneration by coppice; root systems of trees of seedling and coppice origin; regeneration fellings; selection of coppice shoots to grow on to tree size; planting and sowing; grafting; selection and breeding; nursery practice; seed collection, storage, and treatment; pests and diseases; and utilization. Refers chiefly to walnut (Juglans regia). An appendix suggests details of plantation establishment and organization for various local conditions.

622. Zatyko, Imre. 1959. A diógyökereztetési kiserletek újabb eredményei. /RECENT RESULTS OF WALNUT ROOTING RESEARCH./ Kiserl. Közlem. 52C(2):131-136. illus. /In Hungarian, Russian and German summaries, p. 136./
Describes a Juglans regia layering technique in which rooted shoots are taken from stool beds in spring, stools are then mounded over with about 10 inches of earth and allowed to grow new shoots. When these shoots develop to about a half-woody stage, they are split longitudinally, again mounded over, and develop almost twice as many rooted layers as would otherwise be the case.

623. Zatyko, Imre. 1959. Zur Frages der vegetativen Vermehrung der Walnussbäume. /VEGETATIVE PROPAGATION OF WALNUTS./ Deut. Gartenbau 6:251-253, illus.
Production of own-rooted walnuts in the nursery.

624. Zhuravskaya, E. Y. 1958. /A WALNUT HYBRID IN DUBLYANY VILLAGE./ Les. Khoz. 11(9):75-76. /In Russian/
A cold-resistant Juglans regia x J. nigra hybrid.

625. Zielinski, Quentin B. 1956. A THREE-YEAR COMPARISON OF WALNUT ROOTSTOCKS. Oregon State Hort. Soc. Proc. 48:215-216.

Among English-walnut-type seedlings grown for use as grafting rootstocks, the Manregian variety grew to be the largest. Manregian also was noted for 100-percent seed germination and seedlings of uniform size. Three-year-old Manregian seedlings (and those of the Carpathian No. 1 variety as well) were not seriously damaged by temperature of 12° on November 12, 1955.

626. Zielinski, Quentin B. 1957. COMPARISON OF WALNUT ROOTSTOCK VARIETIES IN OREGON. Fruit Varieties and Hort. Dig. 12(1):10-11.

Shorter version of previous item.

627. Zimmerle, H. 1940. Zum Anbau von Juglans- und Carya-Arten. /CULTURE OF JUGLANS AND CARYA SPECIES./ Deut. Forstwirt. 22: 65-68, 81-84.

Discusses older plantations (dating back to the 1880's) of black walnut in Prussia but concludes that not much can be learned from them. More recent experimental plantings have been severely damaged by frost. Seed was collected from the late-leafing English walnut described by Kämmerling in 1931 and seedlings produced and outplanted in several locations. Although these trees did indeed flush late in May or June and thus escaped late frost injury, they seemed not to harden off properly in the autumn and were heavily frozen back in the winter. The author recommends further trials of walnuts planted in mixture with several other species.

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